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To realise the significance of the discovery of insulin we have to go back nearly 40 years. Before 1885 there had been suggestions, based on post-mortem observation, of some connexion between the pancreas and diabetes; but I think it is extremely improbable that clinical and post-mortem observation alone would, even yet, have produced any clear evidence that diabetes is due to a defective function of the pancreas.

GROWTH OF VIEWS ON PANCREATIC FUNCTION.

Before 1885 the experimental evidence in favour of this view was certainly no clearer. Its results, so far as the pancreas was concerned, were chiefly negative. Claude Bernard[1] and Schiff[2] had shown that the pancreatic ducts could be blocked with paraffin, excluding the pancreatic juice from the intestine and eventually causing fibrosis and shrinkage of the organ, without any serious impairment of the animal's health. It was, therefore, quite clear that diabetes had no connexion with the only function of the pancreas then known—viz., that of forming a digestive juice. Various other workers, from 1682 onwards, had attempted to remove the pancreas by operation, but they failed to extirpate it completely, and no diabetes was recorded. On the other hand, the work of Claude Bernard[3] had demonstrated the possibility of producing a glycosuria by indirect stimulation of the nerves to the liver, and the general impression left by combining clinical with experimental results was that, when diabetes was associated in man with some lesion of the pancreas, this resulted from an involvement of the solar plexus. Then, in 1885, the position was completely changed by v. Mering and Minkowski's[4] success in removing the pancreas completely from dogs, and their demonstration that this operation was regularly followed, within a day or two, by the appearance of a condition resembling severe diabetes mellitus in man, in practically all respects. Among those who confirmed this observation Lepine[5] appears to have been the first to suggest definitely that it indicated the production by the normal pancreas of an internal secretion, necessary for the proper metabolism of carbohydrates and fats. Others, such as Pflüger, long clung to the view that the effect of the operation was not due to loss of the pancreas, but to the injury of nerves to the duodenum. Lepine's view, however, was fully established when Minkowski[6] and also Hédon[7] showed that when a portion of the pancreas was first grafted successfully under the skin of the abdomen, the rest of the gland could subsequently be removed with impunity, diabetes only appearing later and gradually as the grafted portion became sclerosed and degenerated, or immediately if it was removed by a small, second operation. The suggestion was made independently by Schafer and by Diamare[8] that the internal secretion was produced, not by the ordinary secreting acini of the gland, but by the so-called islets of Langerhans. There was at that time no direct evidence in favour of the supposition, and only the suggestive fact that these islets were richly supplied with blood capillaries. Later was discovered (Schultze[9]) the fact, important in the history of insulin, that if the pancreatic duct was blocked with paraffin, the sclerosis of the gland which followed, and which was already known not to entail the appearance of diabetes, destroyed the ordinary secreting acini, but left the islets with their circulation, and presumably their function intact.

THE ISLETS OF LANGERHANS AS SOURCE OF AN INTERNAL SECRETION.

A presumption being thus established in favour of the islets as the source of an internal secretion from the pancreas, and of defect in their function as the cause of diabetes, the pancreas from fatal human cases of the disease was the object of diligent histological examination all over the world, but the results were indefinite. Some observers, such as Wechselbaum and Stangl,[10] and Opie,[11] described degenerative changes in the islets from such cases, but in very many instances observers failed to detect any change. The histological methods then available were, indeed, inadequate for its detection; and even when the methods for staining and recognising the different kinds of cells in the islets were developed by Lane[12] and Bensley,[13] their successful use demanded material of such perfect freshness that they can very rarely, even now, be properly applied to the human pancreas obtained at post-mortem examination.

Here, again, we have to depend, for the next item of definite information, on experiment. Allen,[14] as the result of his experiments on dogs, had found that a small remnant of pancreas, sufficient to maintain the animal's health on a restricted diet, would break down in its function if a diet were given in excess of its power of control. The breakdown might in this way be made permanent. This observation, with its close analogies to the effect seen in the diabetic man who breaks his dietary discipline, enabled Allen[15] later to compare the histology of the islets in a still normally functioning pancreatic remnant with those in a similar portion, whose function had been broken down and permanently destroyed by overwork. The result was highly instructive. Of the two types of special cells, so-called α and β cells, with differently staining granules, which had been shown by Lane and Bensley to exist in the islets, the α cells apparently suffered not at all in the functional breakdown, while the β cells lost their granulation, became vacuolated and distended, burst and disintegrated altogether. By taking the condition in time, and resting the β cells completely by a period of starvation, they could apparently be brought to recovery.

The whole story, then, seems to have been brought into reasonable order on that side; diabetes mellitus is apparently due to a breakdown in the function of the islets of Langerhans, and especially of their β cells. Naturally weak in the individual, perhaps, or with a resistance impaired by some infective or toxic agent, they give way to the least overstrain thrown on them by the diet; if taken in time they can be partially restored by dietary rest, but remain permanently weakened and liable to further breakdown. Thus has been rationalised the treatment of diabetes by resting the defective pancreas, introduced by Allen as the result of his earlier experiments, and, to give credit to scientific clinical work and to our own countryman, arrived at simultaneously by G. Graham as the result of careful and quantitative observations on human patients.

Meanwhile a large number of efforts, made by different workers, to prepare from the normal pancreas an extract containing the missing principle, in sufficient strength to make good the defect in the artificially diabetic dog, or the naturally diabetic man, were almost wholly unsuccessful. Administration by the mouth of fresh or dried pancreas, or various forms of extract, has been tried and tried again, and is apparently still being used by some. The evidence we now have, as to the nature of the active principle, makes it incredible that any significant quantity of this, even if present in the preparation used, would escape the destructive action of the digestive juices. Extracts of various kinds given by hypodermic or intravenous injection gave results at best equivocal. Starling and Knowlton[16] believed they detected an effect of a boiled watery extract of pancreas on the

sugar-consuming power of the heart from a diabetic dog. This, though it received confirmation from Starling and Evans's[17] determinations of respiratory quotients under the same conditions, and from Maclean and Smedley's[18] experiments with artificial perfusion, was abandoned by Starling himself in a paper with Patterson.[19] Murlin and Kramer,[20] using a similar extract, and injecting it into diabetic dogs in large quantities, obtained a suggestion of a positive effect, but came to the conclusion that it was due to alkali added to the extract before injection.

PROOF OF AN ANTIDIABETIC PRINCIPLE.

The nearest approach to a proof of the existence of an antidiabetic principle in the pancreas, in quantity sufficient for detection, was made by Kleiner[21]; but his method gave not the slightest promise of practical application. He injected large doses of unfiltered, watery emulsion of fresh pancreas into the veins of diabetic dogs. On the other hand, the nearest approach to the method, which has proved the key to the practical production of insulin, was made by E. L. Scott,[22] who himself, however, described the preparation he so obtained as completely devoid of the specific action he sought to preserve. It was beyond doubt, then, that the pancreas during life produced and added to the blood a substance necessary for normal metabolism, and especially for the normal utilisation of sugar; but attempts to extract this substance and to administer it artificially had given negative, doubtful, or capricious results, affording no hope of practical application. The general impression, I believe, was that the active principle was either secreted into the blood as fast as it was formed, so that the pancreas never at any one time contained a store of it, or that, if stored in the living gland, it was so unstable that it would cease to exist almost as soon as it was extracted from the cells.

There was another alternative. The principle might be lost in extraction, not on account of an inherent instability, but because it happened to be produced by a tissue scattered, in small packets, through a gland which forms the most powerful digestive ferments in the body. This possibility must have occurred to many physiologists, who also knew that the glandular cells, forming the ferments, could be brought to complete degeneration and made to disappear by blocking the ducts of the gland, leaving only the islets intact and functional. On this view, then, from such a degenerated pancreas it should be possible to extract the active principle of the islets, in quantity sufficient to give clear demonstration of its action. Many, again, may have had this idea; but the whole field of investigation had become so littered with the traces of failure, or of success so uncertain as to be almost more disheartening, that it needed fresh minds, and enthusiasm unclouded by disappointment. Fortunately the idea presented itself to Dr. Banting, who, with the coöperation of Mr. Best, began to put it to the practical test in the medical school at Toronto.[23]

EXPERIMENTAL DEMONSTRATION.

In a few months the first point was settled. A pancreas in which the ferment-forming cells had degenerated as the result of blocking the duct would yield, to simple extraction with cold saline solution, an extract, injections of which promptly reduced the blood-sugar of an artificially diabetic dog. Sugar given with the extract was partly retained and used, instead of being entirely excreted. The active principle was destroyed by boiling or by incubating with pancreatic juice, so that there was abundant reason for most of the earlier failures. Similar active extracts were then prepared from the pancreas of fœtal calves, taken at a stage of development before the pancreatic ferments had appeared. Extracts from normal adult pancreas, made with acidulated alcohol, were then tried and found to contain the active principle, and by daily injections of such an extract a dog from which the pancreas had been completely removed was kept alive and healthy for ten weeks, and then killed.

With the coöperation of Mr. Collip[24] the investigation, which was now under the supervision of Prof. Macleod, attacked the problem of producing, from normal pancreas from the slaughter-house, an extract sufficiently stable and free from toxic concomitants to justify its trial on human patients. This was achieved by a process which, in its essence, consisted of extracting from the pancreas constituents soluble in alcohol of 80 per cent. strength, but insoluble in alcohol of 93 to 95 per cent. strength. This fraction contained most of the extracted antidiabetic principle, now called "insulin." The possibility was thus provided for large-scale use in human therapeutics. Various technical difficulties had to be overcome, and many still wait for solution, to ensure that all the insulin available in the raw material is extracted, that it is freed, as far as possible, from inert or toxic materials extracted with it, and that it is obtained in a clean, safe, and stable condition. Great progress has already been made, and the insulin now available is a very different product from that of even a few months ago. But I am not proposing to-day to deal, except incidentally, with insulin as a practical therapeutic agent. I propose rather to speak of the new possibilities of physiological investigation which are opened up by the now proven fact that this pancreatic principle can be obtained and kept in a highly active form. For, though we cannot lightly value the immediate prospect of relief from almost unbearable deprivation which it presents to many sufferers, this is a small thing in comparison with the new power of penetrating the mysteries of metabolism which insulin will give. The immediate gain for humanity is great; the ultimate gain is as yet immeasurable.

THE CHEMICAL NATURE OF INSULIN.

Let us consider first what little is known as to the chemical nature of insulin itself. No approach to its isolation in a state of chemical purity has yet been made, yet enough has been done already to make us certain that it is a very intensely active substance. By methods of fractional precipitation, which its chemical properties make possible, a dose of insulin sufficient to produce hypoglycæmic convulsion in a full-grown rabbit—an effect I shall deal with presently—can be obtained in the compass of a quarter of a milligramme or less of solid matter. Yet, such is the tendency of insulin to become adsorbed on almost any precipitate which is formed in its solutions, that we can feel fairly certain that only a small proportion of this tiny weight of material consists of insulin itself. When a solution of the impure insulin is saturated with ammonium sulphate the activity passes into the precipitate which is produced; when the reaction of a solution is made acid to a degree represented approximately by pH5, a precipitate forms at this iso-electric point, again containing the activity (Doisy, Somogyi, and Shaffer[25]). My colleague, Dr. H. W. Dudley, has found what will probably be a valuable aid to the purification of insulin, in the fact that when picric acid is added to its solutions a very insoluble precipitate is formed, containing all the insulin, and that this, by appropriate means, can be converted into a soluble hydrochloride, still containing all the activity.

We have every reason to believe that insulin is a protein derivative, and a fairly complex one. It is not only rapidly destroyed by alkaline trypsin, which will split quite simple polypeptides, but also, as Dudley has recently found, by pepsin, which readily attacks only much more complicated molecules. This indicates that insulin is a much more complex body than other hormones, such as those of the pituitary body, which are practically untouched by peptic, though rapidly destroyed by tryptic digestion. Incidentally, it throws light on the fact, already determined directly by the Toronto workers, that insulin has very little, if any, action when it is administered by the mouth. The relatively large molecule of insulin makes difficult its absorption through intact mucous membranes. Dr. Blumgart, who in Boston had found that pituitary extract could be absorbed through the nasal mucous membrane and effectively administered by this route

for the treatment of diabetes insipidus,[26] has found, with Dr. George Graham, here in London, that insulin is very imperfectly absorbed from the nasal passages. Telfer [27] has recently demonstrated that insulin can reach the circulation when it is rubbed as an ointment into the shaven skin of a rabbit; but it is apparent from his figures that only a small part of the dose used was absorbed. Though it seems to be a fairly complex protein derivative, insulin is very stable to heat when its solution is made strongly acid. Under such conditions it will survive heating to 100° C. for half an hour. In alkaline solution it is very unstable, the activity disappearing rapidly even at body temperature.

What little we know, then, as to the chemical nature of insulin does not give any serious prospect of its isolation and of the discovery of its structure. It certainly does not approach the chemical simplicity of adrenalin, or even of thyroxin. What we can expect is that it will be obtained in a condition of higher purity and stability than has yet been attained.

ITS DISTRIBUTION IN NATURE.

The study of the distribution of insulin in nature has already given interesting, and some surprising, results. In the higher animals it seems to be strictly limited to the pancreas, and there is now direct evidence of its further limitation to the islets of Langerhans. In certain fishes, such as *Lophius piscatorius*, the angler fish, the pancreas is spread out into a thin layer in the mesentery and along the mesenteric veins. The islets are gathered into several discrete rounded masses, covered only by a film of ordinary pancreatic tissue, so that, from this fish, the islets and the ordinary glandular tissue of the pancreas can be obtained separately. Rennie and Fraser [28] many years ago administered islet tissue from this fish to diabetic patients, without any decisive result. Since they mostly gave it by the mouth, a negative result, as we now know, was to be expected from nearly all their attempts. Macleod [29] has recently proved definitely that the lophius islets are rich in insulin, while the ordinary acinous tissue of the pancreas contains none. The same result was obtained in another fish, the sculpin. In vertebrates, then, it seems beyond doubt that the formation of insulin is located exclusively in the islets of Langerhans. The suggestion, however, that its presence is essential to the normal metabolism of carbohydrate by all tissues has led several observers to search for insulin in lower forms of life. Already evidence has been given by Winter and Smith [30] of the possibility of extracting from yeast something having the same physiological effects as insulin, while Collip [31] records that he has, in addition, obtained similarly active preparations from clams and from a large variety of rapidly growing vegetable tissues. These results, if confirmed, will have an important bearing on the function of insulin in vital processes generally; but for the present, at least, the vertebrate pancreas remains the only practical source for its preparation on a large scale.

ITS POWER OF REPLACING THE INTERNAL PANCREATIC SECRETION.

The results so far obtained concerning the physiological action of insulin are full of interest and promise. In the diabetic animal or man it does all that could be expected from a supply of the missing internal secretion. Not only is the blood-sugar lowered rapidly, with a sufficient dose, to the normal concentration or below it; the so-called acetone bodies also, produced by abnormal metabolism of fat, disappear from the urine and the blood, lipæmia, if present, is rapidly removed, and in every way, for a few hours, the subject becomes practically a normal individual, capable of taking a quantity of carbohydrate, proportionate to the dose of insulin injected, without rise of his blood-sugar above the normal level.

In a completely diabetic dog the respiratory quotient is about 0·7, indicating that the body is burning fat and protein and utilising practically no sugar. The Toronto group have shown that, if sugar is given to such a dog, there may be a slight rise of the respiratory quotient, indicating that a very little is utilised. If sugar is given with insulin the respiratory quotient rises to a normal level of about 0·9.[32] This would seem to indicate that the power of oxidising sugar is temporarily restored to the diabetic animal by supplying the missing factor, insulin. The dog without a pancreas, if sugar and insulin are administered for a few days, also regains the power of storing glycogen in the liver, which, when the animal is killed, is found to contain a good store of this substance, in contrast to that of the untreated control animal, in which the liver contains mere traces (Banting, Best, Collip, Macleod, and Noble[33]). All the evidence fits well with the view that glucose can be oxidised by the tissues if insulin is present, but that in its absence they cannot deal with it, so that all the sugar-making reserves of the body are called upon to pour into the blood an excess of the food which the hungry tissues need, but cannot use.

The effects of insulin on normal animals, however, strongly suggest that the part played by insulin, though essential to the use of sugar by the tissues, is not to cause its immediate combustion. The action on normal animals, indeed, presents a series of fascinating problems, the solution of which will probably remove long-standing obscurities from the conception of the metabolism of carbohydrates. When a normal rabbit, the blood of which contains, say, 0·12 per cent. of dextrose, receives a dose of insulin the dextrose soon begins to disappear from the blood. By the end of an hour it may have fallen to 0·05 per cent., after an hour and a half to 0·03 per cent., and after two hours, if the dose of insulin has been large, there may be practically no sugar left in the blood. As the blood-sugar reaches the level of about 0·04 per cent. the rabbit shows pronounced restlessness, and a little later falls into violent convulsions.[34] Analogous nervous phenomena may appear in the human patient who has received a dose of insulin, excessive in relation to the supplement of his diet. They are certainly dependent on the lack of sugar in the blood, since they disappear immediately if dextrose is injected.

ITS RELATION TO THE COMBUSTION OF SUGAR.

So far the evidence seems simple enough. Excess of insulin has so accelerated the combustion of dextrose, we might suppose, that the body has used up the whole available supply in an hour or two. But such excessive combustion might be expected to reveal itself in a rise of body temperature and an accelerated respiratory metabolism. The results of actual determinations made by Dudley and Laidlaw, and simultaneously by Trevan and Boock,[35] are entirely opposed to this expectation. The respiratory quotient, indeed, rises somewhat at first, as though sugar were being combusted in greater proportion to proteins and fats; but the rise is due simply to accelerated output of carbon dioxide, and is not accompanied by any increase in the consumption of oxygen. If the combustion of sugar is indeed accelerated, that of the other substances must be correspondingly or disproportionately depressed. Even the rise in the respiratory quotient is an evanescent phenomenon, and by the time the blood-sugar begins definitely to fall below the normal the usage of oxygen and the output of carbon dioxide are both falling rapidly, and with them the body temperature, so that in a couple of hours in the rabbit, in half-an-hour in the mouse, the respiratory metabolism is only one-half of the normal or less, and the animal, in the intervals of convulsive seizures, lies cold and collapsed. Now this does not look at all like a mere acceleration of carbohydrate metabolism—a principal source of bodily energy and heat; it rather suggests the reverse. Kellaway and Hughes have obtained closely similar results on the respiratory metabolism of the normal human subject, when a large dose of insulin was given during a fast.[36]

If sugar disappears, and, as this evidence suggests, is not burned, it must be converted into something else. The first and most obvious suggestion is that it is converted into glycogen, and accumulated in this form in the liver or the muscles. This is certainly not the case. By the time a rabbit or a mouse has reached the stage of insulin convulsions, Dudley finds that a large part, in some cases practically the whole, of the normal glycogen has disappeared from the liver and the muscles as well. So that the process of removal of sugar, whatever it may be, has accounted not only for what was circulating as such in the blood, but also for the much larger quantity potentially available in the form of glycogen in the liver and the muscles. Another possibility, which we have tested, is that the sugar may be converted into fat. Such a conversion would well explain the preliminary rise in the respiratory quotient. But Dudley has found no evidence that it occurs; the liver of the animal poisoned by excess of insulin contains neither more, nor significantly less fat than that of the normal animal.

Experiments on isolated organs have as yet given but little help. Hepburn and Latchford,[37] indeed, have found that dextrose disappears from Locke's solution, circulated through the isolated heart, at three or four times the normal rate, if insulin is added to this solution. Before the discovery of insulin Clarke[38] had shown that the isolated heart removed sugar more rapidly from Locke's solution if the latter was first perfused through the pancreas. But there is no evidence yet that the sugar so removed is burned; if it were, indeed, the heart might be expected to put out energy at three or four times the normal rate, and there is certainly no evidence of this. We are left with the same problem as that presented by the whole animal. Sugar disappears, but we do not know how.

PRESENT POSITION OF KNOWLEDGE.

That is the state at present of the question as to the mode of action of insulin. There is no doubt whatever that its presence in the body in some way is essential to the use of sugar by the tissues, and that it can restore the power of using it to the diabetic; but the manner of its intervention remains dark. Some will doubtless suspect a connexion between these apparent anomalies and the evidence produced, in recent years, to show that the tissues do not use dextrose directly as such, but after its conversion into a hexose phosphate (Emden[39]), for which, according to one suggestion (Laquer[40]), the dextrose must pass through the form of glycogen as an intermediate stage. Winter and Smith[41] have recently put forward some highly suggestive evidence in support of a theory that the sugar in normal blood is not ordinary $\alpha\beta$ glucose, but a reactive form having similarities with the so-called γ-glucose. (For difficulties in the way of this identification, see Hewitt.[42]) Winter and Smith suppose that the function of insulin may be to catalyse the conversion of ordinary glucose, which the body cannot burn, and with which they identify the sugar in the blood of the diabetic, into this reactive, usable form.

Neither this ingenious and attractive conception, nor any of the new evidence concerning the intermediate stages of sugar metabolism, seems to me to throw any light on our difficulty concerning the mode of disappearance of sugar from the blood of the normal animal when insulin is injected. The reactive sugar of the normal animal's blood, if it be such, disappears under the stimulus of insulin just as that of the diabetic does; and in the case of the normal animal the disappearance, in all but its earliest stages, is associated with a fall, not a rise, of the respiratory metabolism. I am inclined, myself, to suspect that the explanation is a simpler and more obvious one than any theory of the conversion of sugar into an unknown intermediate product can by itself afford. It is not, at any rate, absurd, to expect that the state produced by excess of insulin will be the direct antithesis of complete pancreatic diabetes. In the latter condition, in the absence of insulin, the body cannot use glucose; it is at least possible that, when excess of insulin is injected, the effect is so to shift the incidence of metabolism on to the carbohydrate that the body will use practically nothing else, and supply almost all its energy needs by burning sugar, so long as the supply lasts. The result would be the preliminary sharp rise of the respiratory quotient, which actually occurs, and this would not necessarily be accompanied by an increase of total metabolism. As the supply of carbohydrate began to run low, the general metabolism would fall rapidly, until, when the blood-sugar reached a certain level, the failing combustion of this substance would be overtaken by what metabolism of protein and fat still went on, and the respiratory quotient also would fall below the normal. Direct evidence, including measurements of the protein metabolism, if we can obtain them, may prove that such a conception is untenable. But, for the present, I believe that it corresponds with what knowledge we have, and renders intelligible such phenomena as the symptoms which appear as the carbohydrate store nears exhaustion, and their almost instantaneous removal by the injection into the blood of glucose, and, so far as we know, of nothing but glucose—not even of glycogen.

ANTAGONISM BETWEEN PANCREAS AND PITUITARY BODY.

There is one other item of physiological information, recently acquired, which seems to me to present possibilities of great interest. It has long been known that the pituitary body, with regard to its effect on carbohydrate metabolism, has some obscure functional antagonism to the pancreas. In minor degrees of pancreatic defect a patient has a lower tolerance for sugar, so that a small quantity causes the concentration in his blood to rise to an abnormal height, with the result that sugar escapes into his urine. In defects of the pituitary body the opposite condition has been described by Cushing. The patient has a greatly enhanced tolerance for sugar, so that he can take much larger quantities than a normal man without hyperglycæmia or glycosuria. Some recent observations by Burn [43] seem to show clearly that this is due to a definite antagonism between a hormone of the posterior lobe of the pituitary body and insulin. A dose of pituitary extract which will not, by itself, cause a significant rise of the concentration of sugar in the blood, will effectively prevent, or rapidly remove if already produced, the fall in blood-sugar concentration produced by a dose of insulin. The Toronto workers have described the antagonism of insulin to hyperglycæmia produced by a number of different agencies—asphyxia, carbon monoxide, anæsthetics, adrenalin.[44] In all these cases, however, the effect seems to be of the nature of a balance of two actions—one increasing the rate at which sugar enters the blood from the liver, the other the rate at which it disappears from the blood. In the case of the pituitary extract the effect seems to be only explicable as a direct antagonism to the action of insulin.

CONCLUSION.

I have indicated only a few of the directions in which the discovery of insulin is already widening physiological knowledge and presenting new problems of interest. There is every indication that it will prove to have an importance for physiology and medical science far beyond that of its use in the treatment of diabetes. Meanwhile, however, it is worth our while to consider briefly what even the partial knowledge of its action, yet available, indicates as the method by which insulin can be used with greatest benefit to the diabetic. There are doubtless cases in which the natural function has been so completely lost, the islets so hopelessly degenerated, that not even a partial recovery can be anticipated. In such, insulin can prolong life and make it more tolerable, but only at the cost of daily injections which can never be remitted or reduced. Such a result is, in itself, worth attainment, but it seems to me that there is something

much better to be aimed at. All the experience which had accumulated before the introduction of insulin pointed to the possibility of restoring to many diabetics a reasonable measure of normal function by giving their overworked remnant of islet tissue as complete a rest as possible. In many cases this was only achieved by a restriction of diet which was almost unbearable, though still compatible with life. If insulin is now used simply to enable such patients to eat a large quantity of food so long as they can tolerate daily injections, they will get no permanent benefit, and insulin will be wasted. On the other hand, if it is used as an aid to the regime of dietary rest, to enable these patients to obtain some recovery of normal function without such cruel reduction of their diet; if it is used to bring into this class, for which some measure of restoration is possible, others in whom, without insulin, no diet sufficient for life would keep the blood-sugar down and give the overstrained islets a chance of recovery; then, indeed, it will be used to the real advantage of the patients, and be worthy of all the extraordinary enthusiasm which its discovery has aroused.

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Mr. Henry Kimpton will publish shortly the first volume of Collected Papers from the Washington University School of Medicine, and a volume of Clinics and Collected Papers of St. Elizabeth's Hospital, Richmond, Virginia.

CHILDREN IN GENERAL PRACTICE.—A lecture with this title will be delivered in the Board Room of the Royal Hospital, Chesterfield, at 8 P.M., on May 30th, by Dr. H. C. Cameron, under the auspices of the Chesterfield Division of the British Medical Association. All members of the medical profession are invited to attend.

Annual Oration
ON
LIFE AND PROBLEMS IN A MEDICAL UTOPIA.

Delivered before the Medical Society of London on May 14th, 1923,

BY J. WALTER CARR, C.B.E., M.D.,
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IN 1516 Sir Thomas More published his famous work "Utopia," a description of an ideal commonwealth, or an imaginary country whose inhabitants are supposed to exist under the most perfect conditions possible. Many other writers, both before and since, have attempted a similar task, and a former distinguished President of this Society, Sir Benjamin Ward Richardson, in 1875 gave an address on "Hygeia," in which he told what a city should be if sanitary science were advanced in a proper manner. Now that we have a Ministry of Health fully established and many members of our profession strongly advocating a State Medical Service, it may be interesting to consider some of the conditions of life and some of the professional problems which would call for consideration if, not the medical profession as a whole, but—what is quite a different matter—the officials of the Ministry of Health were in a position to rule the country in a despotic manner as a benevolent autocracy. Obviously only a few points can be touched upon in a very limited time, but let us try briefly to survey the life-history of an average citizen under such a regime.

CONTROLLED MARRIAGE.

It is difficult to know where to start, but it may be convenient to commence with a young couple about to enter into the bonds of matrimony. Each one will have undergone a complete medical examination, including a careful investigation into the family history, a matter which will not depend upon the more or less imperfect recollection of the parties themselves, but on the full life-history of every citizen which will be available for reference. They will both, therefore, be provided with certificates proving that they are in every way fitted by heredity, physical fitness, and freedom from disease to undertake the responsible duty of propagating the race. They will have received also detailed instruction in all matters of sex function and hygiene, so that they may enter upon married life with the most ample knowledge of their reciprocal duties to each other and to the coming generation. A question will naturally arise as to the fate of those members of the community who fail to pass the stringent tests which will rightly be imposed upon all candidates for matrimony. We must trust that the general consensus of public opinion would suffice to prevent them from entering into irregular unions and begetting children who would probably fail to attain a proper standard of physical and mental fitness, but should such illegal occurrences unhappily become at all common the community would have to take suitable precautions in self-defence, and might decree that all adolescents should be examined at puberty and steps taken to sterilise those who could not reasonably be expected to beget healthy children. A similar operation might be performed later upon any who by reason of the subsequent development of disease became unfit for parenthood.

ANTE-NATAL PRECAUTIONS.

Our young couple, having passed the preliminary medical ordeals, are at length happily married and in due course the wife becomes pregnant. Imme-

diately upon the fact becoming known her condition will be notified forthwith to the medical officer of health, by whom she will be allotted to the nearest ante-natal clinic, and thus the unborn child will be brought within the grip of the health authorities, a grip never to be relaxed until, probably at a ripe old age, his mortal remains are disposed of, in the most hygienic manner possible—cito, tuto et jocunde—in the municipal crematorium.

A definite period of time will be fixed before the expected date of confinement, and also subsequent to it, during which the mother will be strictly forbidden to do any work, and special precautions will be taken to ensure that she is supplied with suitable food. At intervals throughout her pregnancy she will be carefully examined, so as to enable any complication or abnormality to be dealt with promptly, and also to obviate the necessity for a pelvic examination during the early stage of labour. Parturition amid the unhygienic surroundings of the patient's home will necessarily be strictly forbidden and in due course she will be admitted to the municipal maternity hospital, and thus the present death-rate of 0·4 per cent. from child-bearing should be reduced to an infinitesimal figure. I must leave it to the obstetricians to decide how far labour would be regarded and treated as a major operation and attempts made to sterilise the surrounding structures; but, as an indication of what the future has in store, I note that Dr. T. Watts Eden has lately told us that "in the United States an important group of younger obstetricians are advocating and practising induction of labour in all cases before term, to save the patient from the discomfort of the last few weeks of pregnancy, and that it is being done in our own country also to some extent."[1]

The birth of the child will be duly notified and the mother fully instructed on the subject of breast-feeding before she leaves hospital. She will then be referred to the infant clinic or welfare centre, to which she will be required to take the infant every week, so that he may be weighed, his progress carefully watched, and his feeding superintended until he reaches school age and is handed over to the school medical officer. If any definite medical or surgical treatment should in the meantime be necessary he will be transferred to a treatment clinic.

THE PROBLEM OF POPULATION.

And now let us turn aside for a moment from the newly-born infant to consider a question on which the parents will rightly expect definite guidance, if not authoritative command, from the State—viz., what period should elapse before they again venture upon the responsibilities of parenthood and also how many children will it be advisable for them to beget. If any definite limits are fixed, advice will naturally be asked as to the best method of preventing a premature or a superfluous pregnancy. There are still some members of the community, few, indeed, I think in the medical profession, who do not recognise any limit as desirable to the number of a family and consider it a duty for parents to obey the ancient command, given under conditions very different from those of the present day, to be fruitful and multiply and have as many children as possible. They argue that a tenth or twelfth child may be a genius—a Shakespeare, Newton, or Pasteur, and that restriction of the family may thus involve a world loss.

Such good people, however little they may intend it, are the most zealous supporters of war, for are not most wars really due to the pressure of an increasing population? By providing an unlimited number of children they are doing their utmost to supply also unlimited "cannon-fodder." As medical science progressively lowers the death-rate and limits the extension of epidemics, whilst improvements in methods of transport steadily diminish the risks of localised famines, it is difficult to see any way by which the natural increase of population can be kept from outgrowing the food-producing resources of the earth except by ever increasingly destructive wars. It is true there are still large areas in Siberia, America, and Australia very sparsely populated, but should the inhabitants of the world continue to multiply at the rate at which they have done during the last century, these vacant spaces would be filled within an appreciable time. As Dean Inge observes, "Over-population is the result of a very low standard of civilisation. Families are restricted whenever the parents have social ambitions and a standard of comfort."

It may, of course, be argued that if we fail steadily to increase our numbers, more prolific races will gradually displace those which are more or less stationary, so that presumably in course of time Germans will submerge French and English, Russians will conquer Germans, and Chinese overrun Russia. What an appalling prospect for the unfortunate human race—to be compelled to multiply as rapidly as possible, and then to have to choose between starvation and recurring, sanguinary wars! An objection may naturally be raised that if birth restriction were practised extensively the population might actually begin to decline, or at any rate cease to increase materially, so that emigrants would no longer be available to fill up the vacant lands in our colonies. This danger, however, could easily be met by a careful system of taxation. If after a certain number of years of married life parents had failed to produce, say, three or four children, and no adequate reason, either of health or finance, for the deficiency were forthcoming, heavy extra taxation could be imposed for each child under the minimum. It is interesting to note that in Vienna, a few months ago, owing to economic conditions, definite steps were being taken by the wage-earners' sick-clubs, in active coöperation with the gynæcologists, to encourage the prevention of conception amongst women whose circumstances, after investigation by competent persons, justified their wish not to have children.[2]

BIRTH CONTROL: A LEAD FROM THE MEDICAL PROFESSION.

Assuming, as I think we justifiably may, that, in the future Utopia birth restriction will not only be practised but encouraged, what directions will the medical profession give for the prevention of conception? Nature has provided so carefully for the all-essential factor of the propagation of the race, that possibly no method of restriction can be devised which will be absolutely free from drawbacks or disadvantages of one kind or another, whether of possible damage to health or of diminution of pleasure. Such conceivable drawbacks, however, can be hardly comparable to the evil results, at least in town life, of families of unlimited size. Some people assert that the only safe and right plan is absolute continence so long as pregnancy is not desired; they are usually either elderly folk who have probably forgotten that they ever had sex instincts, or worthy ladies who perhaps never developed them, or ecclesiastically-minded celibates who are apparently anxious to make a vicarious atonement for their own infertility by encouraging the highest possible fecundity in others. Anyhow, the suggestion that healthy young people should live together in the close association of happy married life, and yet consummate the marriage only at rare intervals, is hardly worthy of serious consideration, unless it be with the doubtless highly laudable but perhaps unnecessary object of providing work for unemployed psycho-therapists.

I do not propose to discuss other and more practicable methods of birth restriction, but will merely make one suggestion: from the average size of doctors' families one would infer that most of them practise some form of restriction, therefore, let all married medical men and medical women be invited to state, under the seal of strict anonymity, what method they employ. The replies would certainly be interesting and probably instructive.

[1] THE LANCET, 1922, ii., 998.

[2] THE LANCET, 1922, ii., 1400.

THE DOOMED APPENDIX.

Let us return from this digression to the life-history of our infant. Before he reaches school age several most important points will have to be considered: first and foremost, what superfluous parts or organs is it desirable to remove?[3] If he is a boy it goes without saying that he will be circumcised in early infancy. A far more serious question, however, will arise a little later in both sexes—viz., should the appendix be removed as a matter of routine? When we remember that even now, despite all improvements in diagnosis and treatment, appendicitis is responsible for about 2500 deaths a year in England and Wales, a number which tends to increase rather than to diminish; when we reflect on the enormous amount of illness and suffering to which it gives rise in the thousands of cases which recover; when we know that the abdomen is rarely explored by any surgeon without the appendix being removed; when we realise how rarely the surgeon seems able to assert wholeheartedly and conscientiously that any appendix which he sees during life is really absolutely healthy, and when we find that no one apparently is ever the worse for its removal, is not the conviction irresistibly forced upon us that it would be infinitely preferable in all cases to remove it in early childhood, and so save thousands of lives and an absolutely incalculable amount of disease and anxiety? The mortality from such an operation, performed by surgeons who by constant practice had attained the highest perfection of technical skill, would be almost negligible.

ADVISABILITY OF UNIVERSAL COLECTOMY.

Should we, however, in the future be content to stop here? If preventive removal of the appendix has so much to recommend it, ought we not to consider the enormous diminution of disease and the great prolongation of life which should result from complete removal of the entire colon? Let us think over and weigh carefully the reasons for advising a step apparently so drastic. We have the highest surgical and other authority for stating that, owing to man's most unfortunate assumption of the erect posture, his large intestine tends to become one prolonged cesspool, at any rate in a vast proportion of civilised humanity; that this intestinal stasis leads to the production of poisons and so to a chronic toxæmia which gives rise to degenerative changes in every tissue and organ of the body; and further, that owing to this auto-intoxication, many grave diseases, due to invasion of the body by micro-organisms, are prone to develop, which would not occur were the vitality of the tissues maintained at a normal level.

A Few Results of Chronic Intestinal Stasis.

Let us briefly note the actual morbid conditions or diseases which, in one or other of the above-mentioned ways, may, it is asserted, be produced as a result of chronic intestinal stasis. In the alimentary canal itself are pyorrhœa, all kinds of indigestion, ulcer, and finally cancer of the stomach. Incidentally, as a physician, I should like to take this opportunity of saying how much indebted I am to those surgeons who have pointed out the direct connexion between simple ulcer and malignant disease of the stomach, a connexion which physicians themselves might easily have missed, especially as it does not extend to duodenal ulcer. With deep regret I observed some months ago that Sir Bernard Spilsbury[4] had ventured to make the almost blasphemous suggestion that microscopic appearances which really were due merely to regenerative changes in the margin of a simple ulcer had actually been mistaken for those of commencing malignant disease. A suggestion which made me recall with a shudder that remarkable hyaline-fibroid formation in the arterioles, described many years ago by Gull and Sutton, upon which most important conclusions were based, until it was shown that the hyaline appearance was due to the action of the acidulated glycerine in which the preparations were placed for examination. Returning now to changes in the intestine from intestinal stasis, we may enumerate duodenal ulcer, appendicitis, all forms of colitis, diverticulitis, volvulus, and finally malignant disease of the large intestine; also, of course, visceroptosis. Furthermore, it is the opinion of certain experts in tropical diseases that dysentery only becomes chronic in those affected by intestinal stasis, and it has been demonstrated that chronic amœbic dysentery can be frequently cured by relieving the latter.[5] From the intestine infection may extend to the pancreas, leading to induration, inflammation, cancer, and diabetes; to the gall-bladder, giving rise to gall-stones and cancer, and to the liver, producing many diseases of that organ.

Turning to other parts of the body we find chronic intestinal stasis regarded as a cause of adenoids and enlargement of the tonsils, these often being followed by infection of the cervical glands; of exophthalmic goitre and other diseases of the thyroid gland, including atrophy, cystic disease, and cancer, also of Raynaud's disease and of typical asthmatic symptoms. In the kidneys it is said to lead to bacilluria and to inflammatory or degenerative changes; in the ovary to cystic disease; in the uterus to retroversion, to metritis or endometritis, and to cancer (in fact, it has been said, "If woman were not imperfectly drained the gynæcologist would not have been evolved"); in the vascular system to either increase or decrease of blood pressure, in the former case with atheromatous changes in the aorta, and all the various evils to which this in turn may give rise; high blood pressure with enlarged heart occurring mainly in men, low blood pressure and flabby heart particularly in women. In the nervous system there are described various forms of so-called "neuritis," sciatica, &c., headaches, sleepiness or sleeplessness, melancholia—culminating in suicide—or imbecility. The muscles waste and become flabby, so that round shoulders, lateral curvature of the spine, flat-foot, and knock-knee are apt to develop. Indurative changes in the breasts may go on to cystic or other forms of degeneration and eventually to malignant disease. There is loss of fat, and consequently marked alterations in the form and contour of the body, especially of women. The skin becomes pigmented, is very liable to pustules, and excretes an offensive sweat. The hair of the head is apt to fall off, and that on the cheeks, lips, and chin to develop to excess. A serious loss of accommodative power in the eyes is stated to develop, so that presbyopia is greatly hastened and the ciliary muscle weakened.

Coming finally to general infections, we are assured that "the presence of tubercle, except by direct inoculation, is . . . always preceded by that of auto-intoxication." This seems to be especially true of tubercle of the intestine and mesenteric glands; Addison's disease may likewise develop. Also rheumatoid arthritis (including Still's disease), like tubercle, is said never to be present except in association with auto-intoxication due to chronic intestinal stasis.

The Remedy.

Incomplete though this list may be, it is a truly appalling catalogue of the possible, or even probable, effects of this most grave, distressing, and common condition, worse even than the evils which a few years ago were attributed to uric acid, now regarded as but a harmless by-product of metabolism; such are the vagaries of professional fashion. It might well seem a simpler and shorter procedure to enumerate the diseases which are not due to intestinal toxæmia, but that, as knowledge increases, it may become increasingly difficult to say of almost any morbid condition that it cannot be produced in this way, either directly or indirectly. Anyhow the case against an organ

[3] It may be desirable at this point to say that the writer hardly expects or desires all his subsequent arguments and conclusions to be taken altogether literally.

[4] Proceedings of the Royal Society of Medicine, Section of Medicine, October, 1922, p. 25.

[5] THE LANCET, 1922, ii., 1116.

which is apparently responsible for so many of the most serious and fatal disorders to which man is liable, becomes overwhelmingly strong. We may, however, fairly ask if there is anything to be said on behalf of the large bowel; any good reason for its existence; any mitigating or extenuating circumstances to set against the long indictment of its infamies and iniquities. Apparently there is not. In 1903 Metchnikoff wrote: "It is no longer rash to say that not only the rudimentary appendix and the cæcum, but the whole of the large intestine are superfluous, and that their removal would be attended with happy results." In 1902 Dr. Barclay Smith, of Cambridge, said: "The statement is perhaps a bold one, but I am convinced that the large intestine is practically a useless incumbrance to man." Finally, in 1912 we have the words of Sir Arthur Keith: "Every year the opinion gains ground that the great bowel, from appendix to rectum, has become, so far as man is concerned, a useless and dangerous structure." Not so many years previously the same statement might well have been made of the thyroid gland; at any rate, whether made or not, the idea was acted upon, with quite remarkable and instructive results. Of the thyroid it was urged that at least it added something to the external beauty of the human form, but even this poor excuse cannot be made on behalf of the colon. Can anything more opprobrious and degrading be said of it than to be compelled to call it a cesspool! Surely the case is complete for routine removal of this cesspool in any community which regards health as the first essential of happiness. Doubtless for a time there would be a certain percentage of casualties, but this would naturally diminish as a race of surgeons arose absolutely expert in performing colectomy, and the number of deaths from the operation would indeed have to be large to out-balance the enormous gain to mankind from the abolition of only a few of the maladies which have been attributed to intestinal toxæmia; picture, if we can, a world in which there were no diseases of the large intestine or appendix, no tubercle, no rheumatoid arthritis, and certainly an immense reduction in the cases of malignant disease. The late Sir Henry Thompson in one of his lectures on Diseases of the Male Genito-Urinary Organs observed that man paid a high price for his distinctive organ; with yet greater truth we may say that men and women alike pay a far higher price for the distinctive erect posture they have so presumptuously assumed.

Importance of a Supply of Oil.

At what age, by preference, colectomy should be performed I will not venture to suggest, but as some of the most important of the lesions to which stasis is said to give rise begin quite early in life—for instance, adenoids, enlarged tonsils, and abdominal tuberculosis—it is evident there should be no unnecessary delay in eliminating their cause, and Sir Arbuthnot Lane tells us he has performed colectomy with complete success very early in childhood.[*] For conscientious objectors, or until the operation became thoroughly popularised, the public health authorities would probably enjoin the liberal use of paraffin, and in the long run it would obviously be a really economical procedure to distribute it to the population generally at the public expense. The immense hygienic importance of an absolutely unlimited supply of this invaluable remedy should, therefore, be remembered whenever the question arises of giving up our hold on the Mesopotamian oil wells.

ADVISABILITY OF UNIVERSAL TONSILLECTOMY.

In considering what further parts of the body it may be desirable to remove we come next to the tonsils and, of course, any adenoidal overgrowths with which they may be associated. We are, however, confronted with the difficulty that, as has already been suggested, a colectomy in early life might suffice to prevent any subsequent development of throat trouble. Experience alone can decide this, but in view of the possibility that this operation might not become universal for a considerable time, or might not be performed soon enough to avert a condition which sometimes develops in the first few months of life, it is quite likely that tonsillectomy would be compulsory in a well-ordered state.

In the case of the colon it seemed desirable to call attention to the long list of diseases for which its presence is responsible, because the enormous variety and the universality of these evils is perhaps even yet not sufficiently recognised, but it is quite unnecessary to dilate upon the many troubles, local and general, which result from adenoids and enlarged tonsils; they are fully known to us all. The actual question which confronts us is whether, under present-day conditions, the tonsils are ever really healthy. I am bound to say, judging especially from what I learn from some of those who specialise in that department of the body, it seems so rare for anyone to have healthy tonsils that, for all practical purposes, everyone would be better without them. Their removal always seems to be indicated, usually at once, occasionally at the first convenient season. In former days the teaching as to the training of a boy was—"flog him when you meet him, for if he is not naughty now he will be very soon," so of the tonsils it may be said it is better to remove them forthwith, for if they are not diseased now they will be presently. Prevention is surely better than cure, and it is hardly possible to imagine the extraordinary gains which would follow if these most unnecessary and disease-producing organs were always removed at an early age, the great improvement both in physical and in mental development, the absence of diseased cervical glands and all their consequences, the diminution in deafness and in ear diseases generally, in laryngitis, bronchitis, and other lung troubles, in gastro-intestinal disturbances, in many grave bacterial infections, not to mention the possibly lessened incidence of abnormal conditions in more distant parts of the body, resulting from some mysterious reflex effect of the unhealthy state of the naso-pharynx. It is possible that the frequency of rheumatic fever, with all its disastrous consequences to the heart in childhood, would be greatly lessened, although I am obliged sorrowfully to confess, from considerable personal experience, that the most complete removal of tonsils and adenoids does not suffice to prevent recurrent attacks of rheumatism in children. Perhaps this merely provides another argument for prophylactic removal of the tonsils during the first two or three years of life, before any rheumatic manifestations have developed.

Doubtless in the model state of the future tonsillectomy would not be done under the present somewhat haphazard conditions, but in municipal hospitals, into which children would be admitted in successive batches and in which they would be kept until the raw surfaces had begun to heal, so that certain undesirable results, of which we occasionally hear, would no longer be possible.

THE CASE FOR FALSE TEETH.

The next problem which the medical rulers of the hygienic state would have to consider would be that of the teeth. Again, as in the case of the tonsils, we have to face the possibility that removal of "the cesspool" would so far diminish the vulnerability of the teeth and gums to microbial infection that oral sepsis would become comparatively rare, and that the standard set by Moses, as described in the Vulgate version of Deuteronomy, to which attention has recently been drawn by Mr. R. C. Ackland, President of the Section of Odontology of the Royal Society of Medicine, would be commonly reached; "Moses was 120 years old when he died; his eye was not dimmed, nor were his teeth loosened." Unfortunately, however, there are still many authorities who will not accept intestinal stasis as an important factor in the production of pyorrhœa, some even who perversely reverse the order of events and maintain that oral sepsis is a frequent cause of intestinal infection.

[*] THE LANCET, 1922, ii., 1116.

Obviously on this point a fight to a finish is desirable, unless, indeed, as so commonly happens, each party has a certain amount of truth on its side, although, of course, it would be entirely contrary to human nature (scientific or otherwise) for the disputants in any quarrel to admit so disconcerting a fact. Anyhow I fear for the present we had better assume that colectomy might not solve the problem of the teeth. The difficulty, then, is aggravated by the fact that we have to deal with two sets of teeth. Those of the first dentition are, however, got rid of so soon that their diseases can be treated with comparative ease. It is with the second set that serious trouble begins, and the disorders and diseases attributed at the present time, on the strongest evidence, to oral sepsis, and especially to peri-apical bone necrosis secondary to dental caries, are almost as numerous and fully as varied and serious as those supposed to be due to intestinal stasis, in fact, to a considerable extent the two overlap. The result is that it is not easy for an unprejudiced and unbiassed observer to decide whether man is more to be pitied for his misfortune in having inherited from his remote ancestors teeth or a large intestine. Without them both it would appear that he might have a reasonable expectancy of attaining a patriarchal age. One of the great questions of the future, therefore, must be whether it would not be far better to extract the second teeth at or soon after their first appearance, rather than have to remove them one by one at irregular intervals later on, or possibly simultaneously at one fell swoop, after they have given rise to an infinite amount of local discomfort or actual suffering, and, what is far more important, to infective conditions of other parts of the body, which before their cause is removed, may materially shorten life or at least produce permanent and crippling deformities. The question is really precisely similar to that of removal of the colon, whether prevention is not better than cure, whether, in fact, the comparatively slight discomfort of having to wear artificial teeth just a few years earlier than would otherwise be the case, would not more than be atoned for by an escape once and for all from the ever-increasing risks and penalties involved in trying to retain the permanent teeth (falsely so-called) for a few fleeting years.

There is, moreover, the added incentive that removal of the teeth involves practically no risk to life, whereas this can hardly be said at present of colectomy. If our dentists could find some way of preventing premature dental decay and oral sepsis the matter would, of course, be entirely different, but for the moment at any rate this discovery seems to be as far off as that of the cause of cancer. If the teeth are allowed to remain the great danger is that all unsuspectedly they may give rise to grave septic conditions; in fact, thousands of people to-day are, as has been truly observed, almost certainly nourishing a viper in their bosom. We know only too well that external appearances may be entirely misleading, that the teeth may look perfectly healthy, that all the outward indications of pyorrhœa may be conspicuous by their absence, yet that at their roots grave changes may be in progress, which constitute an ever-present menace to health and even to life, and that when this hidden source of disease is discovered the unhappy patient may hesitate too long before consenting to part with apparently healthy teeth.

It is now well known that no teeth can be pronounced sound until they have been subjected to a complete radiological examination. I wonder how many people there are, nearing middle age and with any considerable number of teeth left, who could pass successfully so severe an ordeal. It would certainly be intensely interesting if reports could be obtained of the condition of all the patients who in recent years have been rendered edentulous under medical or dental advice, as to the exact amount of benefit they have derived from the treatment. One meets now and then with ungrateful patients who persistently avow that their rheumatism, their pains, their nervous or intestinal symptoms are not one whit the better since the complete removal of their teeth; occasionally they obstinately maintain they are not so well, at times even they tend to pass into chronic invalidism and spend their days, like Augustus mourning his lost legions, in unavailing lamentations over their lost members. Clearly they are the victims of our present haphazard system or want of system, whereby we are only too often content to await the full development of disease, instead of intelligently trying to prevent its onset. Doubtless before these patients were advised to have extraction performed, or at any rate before they reluctantly consented to its being done, under the scientifically combined pressure of family doctor, consultant, dentist, and radiologist, pathogenic germs had penetrated deeply into the tissues around the dental sockets, and, even if these had been well scraped out, an intractable infection had already occurred in the intestine, joints, or other distant parts. No, the case in favour of preventive extraction seems complete; the alternative of having the teeth of the whole adult population examined at least once a year, not only by a dentist but also by a radiologist, is hardly practicable, even in the most highly organised medical state. How much simpler and in every way better to prevent, by extraction of the teeth in early adult life, all the prolonged sufferings, the varied risks, and the grave perils which will be involved should the removal be postponed until it becomes obligatory in middle life, when perhaps irreparable mischief has already been done.

Time does not permit us to pursue further the fascinating problem as to what other parts of the body it might be desirable to remove, except just to mention the valuable suggestion that in women after the climacteric the uterus should be excised to abolish the risk of cancer in that organ, with a consequent saving of some 4000 lives a year in England and Wales; an equal saving of life from mammary cancer might also be effected by removal of the breasts about the same time. In elderly men the prostate would be removed as soon as there were any accumulation beyond a very few drachms of residual urine in the bladder. After all the removal of an organ nowadays need hardly be regarded as a serious matter, seeing how easily any resultant defects can be remedied by organo-therapy.

VACCINE TREATMENT.

We reach next the important question against what diseases should the child as he grows up be vaccinated? We may take for granted here vaccination against small-pox, always bearing in mind, however, that to secure complete immunity it will probably be necessary to repeat the operation at intervals of not less than ten years throughout life. A far more important matter is the desirability of systematic vaccination against the great group of the infective diseases of the respiratory passages—the common cold, laryngitis, bronchitis, broncho-pneumonia, acute pneumonia, and influenza. We must recollect that, so far as this country is concerned, we have in this group the most frequent of all diseases—the common cold—itself relatively trivial, yet responsible for an enormous amount of inconvenience, discomfort, and temporary invalidism, and often giving rise to such serious conditions as middle-ear and sinus troubles, bronchitis, &c. It includes, also, two of the most fatal of all diseases in temperate climates—bronchitis and pneumonia—rivalled or surpassed only by cancer and phthisis, and it embraces also influenza, from time to time the most widespread and fatal infective disease. Could we abolish the deaths from this great group of diseases, the mortality rate in this country would be reduced by over 15 per cent. and by much more in those years in which influenza, but for preventive inoculation, would be epidemic. Judging from what we are told by the protagonists of vaccination, is it not reasonable to expect that in the future, given a sufficiently obedient population, these common and most fatal diseases may be brought under control by a well-devised blend of some half-dozen micro-

organisms—pneumococci, streptococci, *Micrococcus catarrhalis*, influenza bacilli, &c.—used as a vaccine, whereby immunity would be produced? As these diseases spare neither age nor sex, and are no respecters of social position, it follows that the use of the vaccine must be started in early infancy, must be continued throughout life, and its beneficent influence extended to the whole population; in other words, the prophylaxis must be carried out on thoroughly democratic lines. At what intervals the injections should be repeated I will not presume to say, certainly every few months at least, but probably more frequently. I see it stated of one anti-catarrh vaccine that three graduated doses should be given at intervals of seven days during the autumn, and for those who are very susceptible to colds or catarrhal conditions during the winter months a subsequent dose each month during that period. One of the incidental advantages, therefore, of the universal adoption of this preventive treatment is that it would at least do something towards solving the problem of unemployment. If the inoculations were started early in life, before pathogenic germs had already obtained a lodgment in the respiratory passages, the risk of any untoward sequel would presumably be negligible. From time to time one hears rumours that patients have become seriously ill with acute respiratory disease after, apparently even as a result of, the use of an anti-catarrh vaccine. Since, however, I know of no published record of any such unfortunate happening I can only conclude that these stories must be malicious inventions. It is so desirable, nay essential, that we should be informed of any undesirable results from new methods of treatment, whether preventive or curative, that it is obvious any practitioner meeting with such consequences would at once make them known.

We may no doubt anticipate that in course of time preventive vaccine treatment will become available for all serious infective diseases—measles, whooping-cough, scarlet fever, diphtheria and (most important of all) rheumatic fever—just as it is already available for the prevention of the typhoid group of diseases whenever required owing to the withdrawal or absence of those hygienic precautions which normally suffice to prevent their occurrence. It is to be hoped that a separate vaccination at short intervals, against each disease, would not be essential.

THE CARE OF EYESIGHT.

At the commencement of school life the eyesight of every child would, I need hardly say, be most carefully tested. We are just beginning to appreciate the extremely important symptoms, especially in connexion with the nervous system, which may arise from slight errors of refraction, errors which the child exhausts his nervous energy in trying to overcome, whereas were the lesion more gross the attempt at accommodation would not be made. It is becoming evident, if we are to trust some of our ophthalmologists, that all such defects, whether they give rise to obvious symptoms or not, should be corrected up to one-eighth of a diopter, and really it is not easy to see why the line should be drawn at that. Obviously, again, unemployment will benefit by the increasing demand for spectacles, for it would seem that a really perfect pair of eyes must be almost as exceptional as an absolutely sound set of teeth.

PSYCHOTHERAPY.

As the child grows older the question of psychotherapy will naturally arise. It would clearly be most unsatisfactory to free the body, at a considerable expenditure of time, trouble, and even discomfort or risk, from some of the many ills to which flesh is heir, and yet leave the mind a prey to all the neuroses and psychoses which at present so sorely afflict it, and to ignore the absolutely incalculable amount of misery, of domestic unhappiness, the blighting of promising careers, and the waste of life's opportunities to which mental disorders give rise. Fortunately the outlook is a hopeful one, for what colectomy, tonsillectomy, tooth extraction, and divers forms of vaccination may be expected to do for our bodies, psychotherapy and the investigation of the unconscious mind promise to do for our minds. When we think of the amount of time spent in the treatment of patients we label as suffering from mental debility, nervous overstrain, hysteria, neurasthenia, psychasthenia, anxiety states, obsessions, phobias, stammering, and more serious conditions, the imagination hardly enables us to picture a universe in which they would all either be prevented or rapidly cured. We seem to be entering a new world of hope and promise when once we realise that by the discovery of a single simple word which excites some emotional reaction, or by the correct interpretation of a dream, a phenomenon hitherto regarded as too trivial to be worth consideration, we are able to unearth old experiences from the subconscious mind, and by bringing them to the surface start a process, which will lead to the complete release of the patient from fetters which for years may have hampered his activities or even completely crippled his usefulness.

How marvellous, for instance, to discover, owing to a patient getting blocked on the simple word "long," that all her troubles were due to her "longing" for a certain young man, whose offer of marriage she had rejected in haste, afterwards repenting at leisure of her refusal! How instructive to learn that a small schoolgirl's propensity for stealing pencils was stopped as a result of the discovery that a pencil symbolised to her the penis of her young brother, and that her youthful mind had been filled with envy and jealousy when she discovered that he possessed an organ of which she was devoid! What new hopes of successful treatment are raised when we read that a young man who had been stammering for several years was perfectly cured of his infirmity when he realised that his difficulty in articulation was worst for words commencing with "K," and that this was the first letter of the name of a former sweetheart who had jilted him in favour of another man! What therapeutic possibilities await us when we really understand that a woman's dream of being run over symbolised her desire for sexual intercourse—for is not a dream the disguised fulfilment of a repressed wish?—and that such apparently prosaic dreams as of walking up and down stairs, flying, or journeying in a train or other vehicle, are to be similarly interpreted! Doubtless in the future psycho-analysts will be attached not only to all our schools, colleges, and universities, but also to our Courts of Justice; in fact, the whole administration of Justice will be profoundly revolutionised as soon as systematic efforts are made to probe the unconscious minds of our criminals and so arrive at a more accurate estimate than is possible at present of their degree of responsibility. A very large number of men and women will have to be selected and trained as modern Josephs and Daniels, up-to-date successors of the magicians, the astrologers, the Chaldeans and the soothsayers who flourished at the court of ancient Babylon, specialists in the admittedly difficult task of the interpretation of dreams, for "not everyone can become an interpreter of dreams. It takes a skilled and patient specialist thoroughly to understand the process."

When we read that Freud has spent three years on a single difficult case of psycho-analysis, and that very frequently the analysis drags out through weeks or months, we realise what an immense number of practitioners will be required adequately to deal on these lines with the prevention and cure of all the disorders and functional diseases of the nervous system. Truly we need be under no apprehension in regard to any diminution in the demand for medical men in the coming Utopia, only they will be distributed differently than they are at present; the vast majority will presumably be either surgeons, radiologists, psychotherapists, or pathologists, with, of course, a large number of dentists to cope with the necessary extractions and the manufacture of artificial dentures.

TUBERCULOSIS.

Time will not permit any discussion of the methods which will be employed in the future for the prevention and cure of tuberculous disease, should it not be eradicated by the universal adoption of a timely colectomy. Two at least of our present customs, it is to be hoped, will be altered. The first is that of sending patients suffering from phthisis into sanatoriums, admirably and expensively equipped, keeping them for about three months and then letting them return to attempt to earn a living in the same conditions and amid the same surroundings as those under which they first contracted the disease. What reasonable probability is there that a man who in a particular environment has developed phthisis, will not relapse when, with lungs more or less extensively damaged, he returns to his old conditions of life, with diminished wage-earning capacity and consequently a severe handicap in the struggle for good food and good housing? The problem presented by the chronic or temporarily healed consumptive is far more than a medical one, it raises questions of the widest social interest and importance.

The other change we may look forward to is in our present practice of doing our best to develop tuberculous disease in children by allowing them to drink milk containing an unknown number of tubercle bacilli, and then when the result which might be anticipated actually follows, going to infinite trouble and expense to prolong the lives of these same children after they have been crippled, deformed, maimed, and scarred by tuberculous disease of bones, joints, or glands. Even if we cannot as yet entirely prevent the presence of tubercle bacilli in cow's milk, we can at least effectively destroy them by the simple measures of boiling or pasteurisation. A vast amount of progress will have to be made in our medical Utopia in connexion with the purification of the national milk-supply.

VENEREAL DISEASE.

On leaving school every member of the community will be transferred from the school doctor to the panel practitioner, so that continuity of medical supervision may be maintained. About this time the very serious question will arise as to what steps should be taken to prevent the young men, after they reach the age of puberty, from contracting venereal disease. Each one will receive full instruction with regard to his sex organs, their functions, use and abuse. He will be told that it is his duty to remain continent until such time as he is able to marry and that continence is the only absolutely reliable safeguard against infection. He will also be informed, however, that if he finds himself unable to follow these counsels of perfection, if at any time his natural impulses prove too strong for his self-control, it will be his duty to use certain chemical methods of prophylaxis, in regard to which he will receive detailed and minute instructions, and these personal admonitions will be reinforced from time to time by an intensive propaganda carried on throughout the urinals of the country. Necessarily there will be difficulties, which, however, should serve merely to stimulate the enthusiasm of those who have to overcome them. For obvious reasons it will be desirable for all young men always to have the disinfectants with them, just in the same routine way that we hope they would carry a pocket handkerchief; otherwise, sooner or later they will be wanting at the critical moment, and it is at least conceivable that their absence might not serve as an adequate deterrent to illicit intercourse. In a really well-drilled and well-trained community, fully instructed on the importance of health compared with mere freedom, the police might be authorised to demand from all unmarried men, at any rate after a certain hour daily, the production of their prophylactic packets, with punishment by fine or imprisonment of those failing to produce them. Until this ideal level of social hygiene had been attained, it might suffice—as these diseases would of course be strictly notifiable—to punish severely any man suffering from one of them who could not prove that he had used the recognised methods of disinfection.

The use of alcoholic beverages would likewise become a matter of the utmost importance; if it were recognised that they tended to increase the frequency of promiscuous sexual intercourse and also, if the quantity taken were at all excessive, gravely to interfere with the prompt and efficient use of prophylactic remedies afterwards, the health authorities might find it necessary to follow the example of the United States and enforce complete prohibition. Again, a well-disciplined, well-instructed and docile population would undoubtedly welcome such a loss of personal freedom in the interest of the health of the community. I will not pause to discuss the interesting question as to what period of time would be likely to elapse before the entire nation, from the highest to the lowest, in overcrowded town and remote rural district alike, had been trained to carry out efficiently these precautions under all circumstances and conditions, but let us consider for a moment the really remarkable results which would have been achieved should venereal diseases thus be reduced to an almost negligible quantity.

Ever since the earliest beginnings of man's history probably one of his highest ambitions has been to be able to do wrong without suffering any evil consequences; hitherto his efforts have not been rewarded with any conspicuous measure of success, so much so that men have actually been taught that wrongdoing (what old-fashioned people called sin) would not go unpunished and that what a man had sown that he would also reap. Now at last arises a hope for mankind of release from this bondage, for if in one important department of life men may be enabled to transgress with a reasonable assurance of impunity, why may not relief come equally in other directions? Nor is this by any means the end of the wonderful vista which opens before us. Hitherto in nearly every form of wrongdoing not only has the individual offender often been punished, but other and perfectly innocent people have generally suffered also. The lamentable consequences of venereal diseases to innocent women and children constitute in fact one of the strongest arguments in favour of the use of prophylactic measures, but it would perhaps be difficult to find any form of evil in which other people may not suffer as much as and not uncommonly more than the offenders themselves. We have only to think of the far-reaching consequences of drunkenness, gambling, &c. In society as constituted it must be so, for as civilisation becomes more and more complex, so it becomes increasingly true that "no man liveth to himself," and the knowledge that this is so may be reckoned as one of the deterrent influences against evil-doing. A man may be prepared to "damn the consequences" so far as he himself is concerned, and yet be less reckless when the interests, the happiness, perhaps the lives of others, are also involved. Now, however, there opens before us the prospect, in at any rate one most important department of morality, of men being able to do wrong with a minimum of physical risk either to themselves or to any one else. It is as if some way were discovered, perhaps it will be, whereby, for instance, men should be enabled to take excessive quantities of alcohol, with all the enjoyment thereof, and yet wholly without any immediate disagreeable after-effects, either physical or mental; or as if they could recklessly indulge in all the excitements of gambling with a tolerably certain assurance of immunity from financial loss. The outlook is, indeed, far-reaching, and yet law has a disconcerting way of asserting itself, and it is perhaps premature to state dogmatically that one of man's greatest ambitions has been attained and that the old statement "Whatsoever a man soweth, that shall he also reap" has been finally rendered obsolete.

May we not, however, go a step further? It has been suggested that the abolition of venereal disease would actually improve morality by placing it on a higher plane, for if there were no risk of unpleasant consequences all the continent people would obviously

be acting from really high motives and not possibly from low and selfish ones only. It is said, for instance, and there is doubtless much truth in the statement, that a morality which depends only upon fear is not worth a great deal; that the man who abstains from promiscuous sexual intercourse merely because he is afraid of possibly contracting venereal disease, is after all a poor creature, hardly worthy of comparison with his more adventurous brother, who is boldly prepared to take risks. I am not sure that we should care for the logical development of this argument in other departments of life. We should probably prefer that a potential thief or burglar, should be deterred by the possibility of imprisonment, if no higher or better deterrent were available. We have at present hardly reached the stage when we should put the brave and adventurous thief, who boldly takes all risks, possibly even the danger, if he be an armed burglar, of being tried for his life, on a pinnacle of moral pre-eminence over the man who remains honest solely because, like the proverbial Scotsman who had tried both honesty and dishonesty, he has come to the conclusion that the former is the best policy, and is such a coward that he dare not incur the chance of disagreeable results.

The Dangers of Continence.

But the possible gains to mankind do not even end here. We used to be taught that self-control, self-restraint, &c., were virtues to be cultivated and encouraged, that they strengthened and built up character and so on, but is this really so? In the light of modern knowledge is it not rather a fact that self-repression, especially sex repression, may give rise to a great variety of nervous disorders and be responsible for a vast amount of illness and inefficiency? The benefits conferred by prophylactic packets are likely to be not merely negative, in protecting guilty and innocent parties alike from the dangers of promiscuous sexual intercourse, but also positive, by preventing all the evil consequences of repressed emotional instincts to which continent people are apparently liable if they do not succeed in completely sublimating their sex energy. Truly, if venereal prophylaxis attains the success hoped for by its sanguine advocates, it will lead to far-reaching consequences, more far-reaching perhaps than even its most enthusiastic supporters anticipate. With such wonderful potentialities for good, might not calomel and Condy's fluid, in an earlier stage of the world's history, have been justly worshipped in the temples of the gods as agents of almost untold benefits to suffering humanity?

ORGANOTHERAPY.

It may well seem that as a result of a scientific system of eugenics, of the elimination of intestinal stasis, of oral sepsis, and of tonsillar infections, with efficient prophylaxis of venereal disease, the almost complete extinction of tuberculous lesions, the effective control of the catarrhal diseases of the respiratory passages and of most of the common infectious diseases by a well-considered and thoroughly systematised plan of universal vaccinations, and, lastly, with the prevention or speedy cure of the functional diseases and disorders of the nervous system by skilful psycho-therapy, that comparatively few illnesses will be left prematurely to terminate man's existence, and that Metchnikoff's ideal will be attained (although, unfortunately, he himself failed to reach it) that, apart from congenital disease, poisoning, accident, and suicide, man will in nearly all cases die from a true senile decay. There remains, however, the possibility of premature degenerative changes in different tissues or organs, due partly to hereditary tendencies and partly to excessive strain unwisely thrown in earlier life upon special parts of the body. Now, therefore, as the final and crowning step in the prevention of disease and the prolongation of life we come to the part which in the future will be played by organo-therapy. The discovery of the functions of the thyroid and that those functions, after destruction of the organ itself, can be carried on satisfactorily by preparations of the gland given by the mouth, has opened up vast prospects for the future which at present we are only beginning to envisage. The list of diseases which it is stated may be benefited by thyroid medication is a very long one; I will not attempt to enumerate them, but as a result of the remarkable success which attends its use, in certain morbid conditions, preparations have been made from nearly all the organs and tissues of the body, including the parathyroid, thymus, pituitary (anterior and posterior lobes), pineal gland, brain, spinal cord, sympathetic nerve ganglia, parotid, stomach, duodenum, small intestine, liver, pancreas, kidney, suprarenal, spleen, lung (as an indirect preventive against pulmonary tuberculosis in the young), testicle, prostate, ovary, corpus luteum, mammary gland, placenta, lymphatic glands, bone marrow, and red blood corpuscles. Each one of these is said to be definitely indicated in the treatment of a varying number of more or less diverse morbid conditions, functional or organic, serious or slight. In addition Prof. Swale Vincent tells us that heart disease has been treated by extracts from heart muscle, iritis by the subcutaneous injection of extracts of the ciliary bodies, and diseases of the joints by extracts of synovial membrane.[7] We are, however, fast passing beyond the primitive idea of administering one of these organic preparations alone; we are learning the moral of the old story of the belly and its members, and are beginning duly to appreciate the fact that when one member, and especially one gland, suffers, all the members and glands suffer with it. The realisation of this introduces us to polyglandular therapy, with its enchanting vista of future possibilities. With some thirty different organic preparations to choose from, the possible combinations and permutations are practically limitless, and I note with interest that a recent panglandine preparation is said to contain parts of no less than 11 different organs of the body—assuredly a wide and practical recognition of the fact that when one endocrinous gland is damaged the whole glandular system is affected. Truly the elaborate mixtures which our medical forefathers were accustomed to prescribe become simplicity itself when compared with a tablet containing so remarkable a combination of substances; and we realise, too, how nearly they anticipated our modern therapeutic triumphs when they administered to their patients parts of various animals and insects, cockroaches, and the like. Incidentally one great advantage of polyglandular therapy is that should some of the ingredients fail to survive the destructive action of the digestive juices, a possibility which ought not perhaps to be absolutely ignored, there is at least the chance that others may be absorbed into the circulation, and so have an opportunity of giving rise to some of the potent effects with which they are credited; faith may be trusted to do the rest and complete the cure.

LETHAL CHAMBERS.

Finally, when the working years of life are past, men and women will be transferred to the care of a special medical department of the State dealing with old people, and with adequate pensions and amid comfortable and tranquil surroundings will await a peaceful ending to life, from painless senile decay. It is hardly to be expected, however, that the increasing infirmities of advancing years can be entirely avoided in all cases; it must still be true that "if youth is an intoxication, old age is the day after." Probably, if these infirmities became increasingly onerous, the question of lethal chambers, subject, of course, to strict medical control and adequate safeguards, would be considered.

DESPOTISM AND LAW.

Probably the greatest danger under a medical autocracy would be that of loss of freedom. A distinguished ecclesiastic once caused quite a grave

[7] THE LANCET, 1922, ii., 319.

scandal by saying he would rather see England free than England sober. I think he was right, and I believe it would be equally correct to say we would rather see England free than England perfectly healthy. A despotism may be theoretically the best form of government if the ideal despot can be found, but he never can be, for human nature is so constituted that the mere fact of entrusting absolute power to an individual or a group of individuals soon renders them unfit to exercise that power over their fellow creatures. A medical despotism would be no exception to the rule. It is no sufficient answer to say that medical government would be necessarily in the best interests of the governed. A man's conception of what is best for his fellows may be absolutely disinterested and honest, his intentions may be wise and unselfish, but his conclusions and decisions may be erroneous, although the more convinced he is that he is doing right and that he is actuated by the highest and noblest principles, the more likely is he to become a tyrant. The exercise of uncontrolled power is almost always a cause of demoralisation, and "conscientiousness has to account for some of the darkest chapters of human history."

A second point we need to bear in mind is that health depends first and foremost on obedience to law—moral law and physical law, for they are of equal importance—and in the long run nothing which is morally wrong can be physically right. We speak of the laws of health, of the need for sufficient and suitable food, for pure drinking water, fresh air, adequate sleep, enough exercise, and so on; truly they all are essential; but there are moral laws, disobedience to which is eventually as disastrous to health and life, as is violation of the so-called physical laws. How many are the victims of lust, drunkenness, covetousness, making haste to be rich, and so on? We need to recognise that we live in a world which is under inexorable laws—moral and physical—from which there is no escape, try how we may, and that we can only be healthy and only be happy by learning what these laws are and setting ourselves steadily to obey them.

Lastly, there is a danger perhaps of dealing too much with secondary consequences rather than with primary causes. To attain as a community the highest possible standard of health we must have an intimate combination of socialism and individualism. We must strive for that fine civic ideal pictured in the stirring lines of Macaulay as applicable to ancient Rome—

> Then none was for a party:
> Then all were for the State;
> Then the great man helped the poor,
> And the poor man loved the great;
> Then lands were fairly portioned:
> Then spoils were fairly sold;
> The Romans were like brothers
> In the brave days of old.

—an ideal which doubtless existed only in the imagination of the poet, but which will have to be reached if ever we are to attain to the highest possible standard of national health. We need the harmonious coöperation of the whole community to provide those things which, under modern conditions of civilisation and especially of town life, the individual cannot provide for himself—adequate housing accommodation, good sanitation, pure drinking water, a sufficiency of fresh air, as good as environment as possible in shop, factory, and workshop, no excessive hours of work, efficient hospitals for cases of accident and serious or obscure illness—and a wage sufficient to enable a man to provide himself, his wife and a reasonable number of children with proper food, warmth, clothing, and recreation. Are we not, however, too apt to forget that all these things, however essential, are entirely insufficient without true individualism, without the determination of each man and woman in the community to obey the great moral and physical laws? A man may be placed in ideal surroundings and live under the best possible conditions, but he need not expect to enjoy good health if he does not constantly strive to make the utmost use of his privileges, if he does not properly employ his money, his spare time, his opportunities; if he is immoral, if he drinks to excess, if he overeats, if he sacrifices physical exercise to ambition or to mere material prosperity. The old question ever arises, "Does the pig make the sty or the sty make the pig?"—in other words, is man the creator or the product of his environment? We have to recognise that for the attainment of ideal health and length of days both the man and his environment must be purified, uplifted, and ennobled. Just as in the political world it is useless, and worse than useless, to give democratic institutions to a people which has never been educated to use them aright, so in the world of health and hygiene it is equally useless to provide the most perfect surroundings and the most healthy external conditions of life for those who are too ignorant, too immoral, too careless, or too selfish to use them properly.

So we come back to the words of the wise man: "Let us hear the conclusion of the whole matter; fear God, and keep his commandments," that is, obey law, moral laws and physical laws equally, "for this is the whole duty of man." Thus, and thus only, not by constantly seeking short cuts to health, not by ingenious attempts to evade the results of law-breaking, not by merely tinkering with consequences rather than causes, can we ever hope to reach the ultimate goal of our ambitions and the final reward of our efforts—a genuine medical Utopia.

A CASE OF
PERIARTERITIS NODOSA,
ACCIDENTALLY RECOGNISED DURING LIFE.

BY E. ROCK CARLING, F.R.C.S. ENG.,
AND
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THE earliest record of this condition was published by Kussmaul and Maier in 1886. Since that time about fifty cases have been described, the subject of this present paper being apparently only the fifth case to be recognised during life, and, we believe, the only patient who has so far recovered as to be able to return to work.

Clinical History.

The patient, a male, aged 30, an engineer, was sent to one of us (E. R. C.) by Dr. G. V. H. Fairhall, of Ladywell, in July, 1921. He stated that for a month he had had severe pain in the right calf, which eased off if rested, but by night, if he had been about on it, the leg "felt as if ready to burst." He had got very much thinner, and now felt "very weak." Upon further inquiry he added that at first he had pain also in the right wrist, and had for a time "lost the use of his hand." His personal history revealed nothing more than "rheumatic fever" at 7 years, and a mild attack of influenza in 1919. He had not served in the army, and venereal disease was denied.

Condition on Examination.—He walked with a pronounced limp, due to restricted dorsi-flexion of the right foot. The right calf, which measured half an inch more than the left in circumference, was tense and tender. In the substance of the sural muscles was a "lumpiness," which sometimes felt like one mass and sometimes like several adjacent nodules without discrete edges. There was slight œdema of the ankle and swelling along the tendo Achillis. Nothing else abnormal was found. Urine normal. Weight, 11 st. 5 lb. (last known weight was 12 st. 5 lb., three months previously).

A provisional diagnosis of gummatous infiltration, or just possibly a sarcoma, in the sural muscles was hazarded. The patient was admitted to hospital on July 13th, for observation. He was found to have an irregular fever of from 99° to 101° F. On the 14th the Wassermann reaction was negative and it was decided to explore the calf and submit a portion of the swelling for histological diagnosis.

Operation.—On the 15th the calf was explored, and the "lumpiness" proved to be not a "tumour," but small scattered nodules of a fibrous nature about the smaller arteries, around which the muscle fibres contracted spas-

modically, increasing their apparent size ten-fold, and then presently relaxed. Two or three of these nodules were excised for histological examination. A good deal of œdema was found under the deep fascia, in and between the muscles and in the connective tissue around the tendo Achillis.

As a result of the operation the patient lost the pain in the leg, but the fever continued for a week or two and very severe pains set in in both arms, which for a time were exquisitely tender. A few subcutaneous nodules appeared on the forearm and about the elbow, but at no time were any detected in the painful muscles. The further course of the case was uneventful, the pains were gradually ameliorated and the fever subsided, and "health" was gradually restored. The patient left the hospital and returned to work, declaring himself "quite well." His weight was then 9 st. 1 lb. He reported for observation in September and October, 1921, and again in March, 1922. He was still "quite well," and had had no return of pains; his weight was 10 st. 2 lb., and although there was general muscular wasting, especially of the arms and shoulder-girdle, he seemed quite comfortable and was at work.

Pathological Features.

The "nodules" were subsequently examined by one of us (J. A. B. H.) and it was at once recognised that the case presented unusual features.

A paraffin section showed the whole of the adventitia of an artery of medium size to be intensely infiltrated with small round cells. This infiltration was not only referable to the actual adventitia but to the fat and muscular tissue in the immediate vicinity. Even fairly remote tissue showed infiltration, which shaded off the further one got from the artery in question. Not only was the adventitia infiltrated but the media and intima as well. The intima and sub-intimal tissues were thickened by this infiltration, or, perchance, by an actual hyperplasia of these tissues. Thus the lumen of the vessel was narrowed, and it is to this that one can assume the cramps and pain were due. At first I could not assign a definite name to the condition, for it did not resemble any of the types of "arteritis" with which I was acquainted. Prof. S. G. Shattock very kindly identified the condition as "periarteritis nodosa," saying that the condition was rare and that he did not think that he had seen a similar section before. In the section the infiltrating cells appear to be all of the small round cell and elongated fibroblast types, and polymorphonuclear cells were not observed. It seemed that they must have arisen from the adventitia and had spread inwards, and not vice versa.

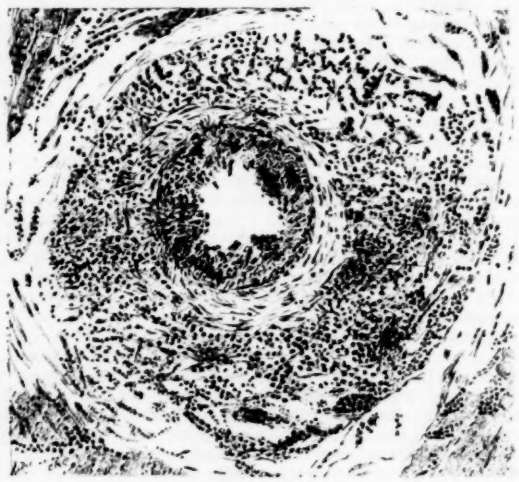
Other investigations on the pathology of the condition were carried out and a brief record is made below of what was found.

The Wassermann reaction was negative, both before and after a "provocative dose" of salvarsan substitute. The red blood cells and the hæmoglobin showed nothing of particular interest, save a slight diminution in their respective values. The leucocytes, however, throughout our observations have shown an increase. Thus:—

—	Total leucocytes.	Polymorphs.		Monomorphs.	
		Neutrophil.	Eosinophil.	Large.	Small.
	per c.mm.	%	%	%	%
July 26, '21	18,000	71	1	4	24
Aug. 9 ,,	30,000	86	–	8	6
Sept. 23 ,,	18,000	68	2	3	27
Oct. 28 ,,	15,800	74	2	2	22
Mar. 18, '22	14,000	67	3	9	21

It is of interest to note that the highest count is that of August 9th, 1921, and that during this time the patient was having the very severe attack of pain in the arms alluded to in the clinical account of the case. A bacteriological examination (aerobic) of the blood made during this attack remained quite sterile. On one occasion, as a matter of interest, I made an Arneth count of the lobes of the polymorphonuclear nuclei, and the result was as follows: 1 lobe, 38 per cent.; 2 lobes, 44 per cent.; 3 lobes, 18 per cent.; 4 lobes, nil.; so that the count is "moved towards the left," and this, according to Arneth, is indicative of some form of chronic toxæmia. As infection by worms (*Strongylus armatus*, &c.) is known in animals to be associated with periarterial and endarterial changes, leading in some cases (horses) to fatal multiple aneurysms, the fæces of this case were very thoroughly examined on two occasions, both before and after santonin followed by a saline purge. No evidence of any worm infection was found.

Animal Experiment.—An experiment was made in order to confirm (or otherwise) the observations of v. Haun. For this purpose 2 c.cm. of whole blood of the patient (which had been prevented from coagulating by the addition of a drop of sterile 10 per cent. citrate) was injected into the peritoneal cavity of a guinea-pig weighing 270 g. (Pig A). The injection did not have any immediate ill-effects, and the animal remained in perfect health till it was killed four months and two weeks after. Two c.cm. of citrated heart's blood from Pig A was injected into the peritoneal cavity of a second pig (Pig B), 2 g. of limb muscle of Pig A were taken under sterile conditions, and minced up with sterile sand and saline (5 c.cm.) and the final "mince" incubated for 24 hours. The supernatant fluid (about 3 c.cm. by this time) was injected into the peritoneal cavity of a third pig (Pig C). Pig B was killed three months later, but Pig C died from acute pulmonary congestion seven weeks later. In none of the pigs A, B, and C were there any lesions of the peritoneum, nor obvious lesions of muscles or blood-vessels. Pig C had only the pulmonary changes seen in this not infrequent incidental trouble of the animal room. The muscles and aortæ of these three pigs were carefully microscoped, and nothing abnormal was noted in the sections. We cannot confirm, therefore, the observations of v. Haun, who claimed that he had been able to reproduce the human lesions by injecting the patient's blood into guinea-pigs, and carrying on from the original series into a second series of pigs. We purposely allowed our pigs to live a long while after the experiment had been started, to enable such lesions as aneurysmal swellings, &c., to develop if there was the slightest chance of this occurring.



Endarteritis and periarteritis nodosa: from a drawing showing a typical cross-section.

Literature of the Subject.

The literature is already extensive. Perusal of the most recent papers, which contain digests of the earlier ones, and to which references are given below, show that the cases resemble one another closely.

Age and Sex.—Most cases are in young men, from 22–42, but women are not exempt, and a case is noted in a man of 62.

Nationality.—German, Russian, French, Italian, and British names appear in the list.

Previous Illnesses.—Many patients had a clean bill of health; syphilis was frequently absent; for the most part such exanthematous or infective disorders as were recorded were long antecedent; no causal connexion was traceable.

Initial Symptoms.—The common initial symptoms are great weakness and pains in the limbs; loss of flesh going on to emaciation; colic and diarrhœa which may be bloody; painful nodules, intramuscular or subcutaneous, which, as with the symptoms, may be transient and recurrent. Œdema of the feet.

Diagnosis.—Hitherto recognition of the condition in life has only been made after a biopsy. The diagnoses offered before necropsy have been trichinosis, miliary tuberculosis, polymyositis, arteriosclerosis, neuritis, purpura, typhoid, myasthenia, acute pancreatitis.

Death.—Has usually resulted from uræmia or from asthenia following progressive emaciation, but also from other causes.

Blood Examinations.—These show a leucocytosis, sometimes with excess of polymorphs, sometimes transitional cells, sometimes monomorphs, and often a slight excess of eosinophils. Blood cultures, both aerobic and anaerobic,

which have been recorded, have generally been sterile. A staphylococcus and a streptococcus have been recovered, but both observations are admittedly open to doubt.

Urine.—Whilst sometimes normal, in many of the fatal cases nephritis has been the cause of death. A marked polyuria has been recorded.

Experimental Production.—Whilst Klotz and Lamb's results were negative, those of v. Haun, who injected blood from his patient into guinea-pigs, and inoculated emulsions of the organs of these into a second series, were lesions analogous in their gross appearances, in their situation, and in histology, to those characteristic in man.

Nature of the Disorder.

The disorder, seemingly a specific infection, is characterised in its early stages by an inflammatory infiltration of the adventitia of the smaller arteries and arterioles, which spreads to the media; this it breaks up by fibrinous exudate; then disintegrates the elastic lamina and invades the intima. The infiltration, though polymorphic in its initial stages, shows the succession of cell changes which are witnessed in those early reparative processes which lead to the formation of granulation tissue and eventual cicatrisation. The intima, which is much thickened, shows sometimes a hyperplasia with stratification of its proper cells, such as is seen in endarteritis, but the thickening is to a large extent by granulation tissue which has appeared to many observers—and to us—to be an irruption from without, but it is right to say that the opposite direction—from intima outwards—is held by others to be the true course of the process. The results of the process, however initiated, are the formation of multiple aneurysms which either rupture with the formation of arterial hæmatomata; or thrombose and lead to infarcts or local necrosis, or degeneration in parenchymal tissues supplied; or cicatrise and recanalise and permit local recovery. The results to the organs are ulcers and hæmorrhages in the wall of the stomach and intestines, degeneration with or without infarction of the kidneys, liver, spleen, testicles, adrenals, pancreas, and heart muscle.

The characteristic picture at necropsy is of multiple aneurysms, some healed or healing, on the renal, hepatic, gastric, mesenteric, splenic, testicular arterioles, and those of the heart; occasionally those of the limbs, and rarely others. The viscera show the associated lesions that might be anticipated. Many of these aneurysms are as small as a grain of rice; the largest not bigger perhaps than a pigeon's egg. Attention has been drawn by several observers to the very similar disorder found in the horse, stag, calf, pig, and dog. In the horse the aneurysms, which are due to the larvæ of an intestinal worm, *Strongylus armatus*, variety *Sclerostomum bidentatum*, are found chiefly in the course of the anterior mesenteric artery, but occasionally in the visceral arteries, though apparently not in those of the limbs. The symptoms in the horse are very similar to those in some human cases—with severe colic, great muscular weakness, distress, and emaciation. It is a fatal disorder. The path by which the larvæ reach the walls of the arteries is not certainly known, but is probably via the adventitia and vasa vasorum. It is noteworthy that our patient's recovery followed upon intravenous injection of salvarsan substitute.

Note.—Since this paper was written Harris and Friedrichs (*Journal of Experimental Medicine*, 1922, xxxvi., 219) have transmitted the disease to rabbits, and shown that the virus is a filter-passer.

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THREE CASES OF PARAPLEGIA FOLLOWING INFLUENZA.

BY H. WILLOUGHBY GARDNER, M.D., F.R.C.P. LOND.

THREE cases of paraplegia following influenza have recently come under my care. Two were of recent occurrence, the third dates from the autumn epidemic of 1918.

CASE 1.—The patient was a motor mechanic, aged 35, whom I saw in consultation with Dr. W. A. Lewis, of Oswestry, on Feb. 21st, 1923. He had then complete flaccid motor paralysis below the ninth dorsal level, with loss of all deep reflexes, and loss of sensation to touch, pain, and heat and cold over the corresponding area. The bladder and rectum were also completely paralysed. The history given was that he had fallen ill a month previously with what was thought to be influenza and that his wife and children and other members of the household had also suffered from it. He complained of dimness of vision and was noticed to have some retraction of eyelids with some slight protrusion of eyeballs. He was only ill for about a week, saw no doctor, and was only away from work for three days. About two weeks later he was down with a second influenza-like attack, again associated with dimness of vision, and this time with severe headache. The next day, Feb. 15th, he complained of stiffness and weakness of the legs, but walked round the room with his wife's help. On the 16th Dr. Lewis found him completely paraplegic, with a distended bladder, of which he was quite unconscious. There was at first but little loss of sensation, but all deep reflexes were absent. Trying to get out of bed he had fallen and bruised his sacrum; this bruise rapidly developed into an extensive bedsore.

When seen on Feb. 21st he complained of a curious defect of vision, and was found to have double optic neuritis and altitudinal hemiopia, especially of the right eye, the lower half of the fields of vision being deficient. He had been delirious the last few nights, though his mind was perfectly clear by day. He was moved next morning into the Royal Salop Infirmary, but by the time he arrived there he had developed acute hæmorrhagic cystitis and a large sloughing bedsore. He lived for about ten days, during the greater part of which time his mind was clear during the day, but he was wildly delirious at night. His death seemed chiefly due to the huge sloughing bedsore. The cystitis was rapidly clearing up under treatment, but the paralysis remained unchanged.

The initial "influenza," the early eye symptoms, the relapse, the headache, the double optic neuritis, the intensely hæmorrhagic nature of the cystitis and the wild nocturnal delirium and sleeplessness with mental clearness during the day seemed to point to an encephalitis accompanying the myelitis and to render it probable that the disease was essentially the same as encephalitis lethargica, but that its stress had fallen upon the spinal cord instead of the brain.

CASE 2.—A student, aged 21, was sent to me from Corris, Merionethshire, by Dr. E. C. B. Ibotson. His illness began on Jan. 4th, 1923, as an attack of influenza, from which other members of his family were suffering at the same time. It commenced with a rigor and he had severe pain in back and hips; his legs were weak and he was unable to sit up. He rapidly improved, and on the 11th he went for a 12-mile walk. This proved too much for him; he returned with difficulty, somewhat collapsed, and had to be put to bed at once. Motor paralysis from the waist downwards rapidly supervened. For the first three days there was loss of control of the bladder, but there have been no micturition troubles since.

He came into the Royal Salop Infirmary on March 10th. He was then found to have complete flaccid motor paralysis of both legs from the hips downward, with the exception of the toes of the left foot, which he could move fairly well. There was no loss of sensation, and there was slight flexor response in both feet, but the deep reflexes were absent and there was marked wasting. No contraction was obtained with the faradic current in the affected muscles. There seemed, however, to be no tendency to bedsores. Since admission there has been no definite improvement of the paralysis, though the patient's general condition, which was very poor, is better.

The points of resemblance between this case and the first are obvious—viz., the initial "influenza" affecting other members of the household, the early improvement and relapse following upon over-exertion, the complete flaccid paraplegia, showing no tendency

to get better, and the involvement of the bladder. In the second case the illness has been far less severe, and its stress seems to have fallen entirely upon the spinal card, no cerebral symptoms having been noted.

CASE 3.—The patient is a woman, aged 21, in whom weakness of the legs followed a severe attack of influenza in November, 1918, with little change since. She is able to walk, but soon tires, and the left foot especially droops owing to weakness of the peronei. The knee-jerks are very slight and the ankle-jerks absent, but she has a well-marked extensor response in either foot. The unchangeable nature of the symptoms and the complete absence of any of the psychical or other symptoms characteristic of disseminated sclerosis differentiate the case from that disease; the presence of extensor response and the symmetrical distribution of the paralysis render it unlike anterior poliomyelitis. I think there can be little doubt that it has been a case of myelitis similar in its nature to the other two cases.

Remarks.

The occurrence of three such cases, two of them dating from the beginning of this year, makes one wonder if other cases are occurring in sporadic form throughout the country, possibly in sufficient numbers to constitute a mild epidemic. As the three cases seem to be of the same nature, and the first case in many respects resembles encephalitis lethargica, I am inclined to think that all three have been really cases of that disease and ought to be notified as such, and that there are probably many others like them.

Dr. F. G. Crookshank tells me that many such cases have been described by American, German, and Italian writers as spinal types of encephalitis lethargica; he quotes Hippocrates as describing an epidemic of paraplegia occurring in the winter months followed by epidemics of "burning fevers" in spring, summer, and autumn—such burning fevers having been in all probability influenza. One practical point emerges from these histories. In the first two cases the paralysis definitely supervened upon over-exertion too soon after the initial attack of influenza; it is evident that we cannot be too careful to prevent over-exertion whenever there are early symptoms of weakness in the legs or symptoms pointing to a possible encephalitis.

Shrewsbury.

Clinical and Laboratory Notes.

A CASE OF INTUSSUSCEPTION STARTING IN A LARGE MECKEL'S DIVERTICULUM.

BY NOEL L. HOOD, M.D., B.C. CAMB.,
HON. SURGEON, YORK COUNTY HOSPITAL.

IN the case about to be described the patient was a boy, aged 8 years, apparently healthy, with no history of illness except a recently fractured elbow.

Present Illness.—For several years he had had occasional attacks of pain in the abdomen, almost always about bed-time, which were relieved by a hot-water bottle. On Sept. 2nd, 1922, he walked round an 18-hole golf links with his father, had a hearty dinner on returning home, played ball in the garden, had a few ripe plums, and went to bed apparently perfectly well and in excellent spirits at about 8 P.M. Two hours later he woke with pain in the body and vomited. He was given some hot water, which he vomited, and then half an aspirin tabloid and a teaspoonful of brandy. He seemed easier for a time, but had a bad night; on the morning of the 3rd he looked drowsy and ill and had severe pain in the right side, with a temperature of 99° F. Dr. E. O. Libbey, of Scarborough, was sent for, and saw the patient about 11 A.M. An enema was administered almost at once with a slight result, and about three-quarters of an hour later the patient passed a large, very offensive, motion with a considerable quantity of blood. Dr. Libbey saw him again about midday, found that a lump felt on his previous visit had not disappeared, and ordered immediate operation. I was sent for from York; pending my arrival the child was seen by Dr. J. Reid Dick, of Scarborough, and removed to a nursing home.

Operation.—I saw him about 4 P.M., and as the condition was obviously one of "acute abdomen" with an egg-shaped lump a little internal to the usual position of the appendix, and he was passing blood and slime at intervals, I spent very little time over any examination and operated at once. Seeing the child was not in a state to stand much, rapidity and the minimum exposure of abdominal contents were main objects, and the lump was rapidly withdrawn from the abdomen and packed round. A very brief attempt to reduce the intussusception showed that this was unlikely to succeed, and that the condition of the gut was beyond reasonable hope if it did. The whole mass was therefore resected with a margin of healthy gut beyond at each end and an end-to-end anastomosis done. About 13 inches in all (after reduction) were removed, and the abdomen was filled up with hot saline and closed as quickly as possible. Recovery was uninterrupted and uneventful.

Specimen.—The intussusception was reduced after the operation with considerable difficulty and was in part definitely gangrenous. The involution began at the tip of a Meckel's diverticulum, where there was a dimple which persisted. It is an exceedingly pretty specimen (see illustration) and the complete intussusception could, with the aid of a long pencil, be reproduced, and reduced again by "milking" it back at will.

1 2 3

Portion of gut removed at operation, showing the intussusception: (1) removed, (2) partly reduced, and (3) wholly reduced, with the starting place shown by the dimple at the tip of the diverticulum.

I have to thank Dr. Libbey for his prompt action and for an excellent anæsthesia, and Dr. Dick for very valuable and skilful assistance at the operation.

A CASE OF INTESTINAL OBSTRUCTION.

BY S. SUBBA RAO, M.B. MADRAS, M.R.C.S. ENG.,
MEDICAL OFFICER IN CHARGE, VICTORIA HOSPITAL, BANGALORE, S. INDIA.

ALTHOUGH intestinal obstruction is fairly common, yet obstruction due to the formation of a *complete* adventitious sac by a process of chronic adhesive peritonitis is a rare condition. I have not found a case similar to the one here described in the surgical literature immediately available.

The patient was a woman aged 20 years, short, sparely built, and greatly emaciated. She had a history of frequent attacks of intestinal colic for over a year, and complained

that a few hours after taking food a round lump appeared in the right side of her abdomen, and moved all over the abdomen with a gurgling noise, causing excruciating pain. The attack generally lasted for an hour or two, and ended with vomiting. At first these attacks were few and far between, and the lump was small; but for the past six months they had occurred almost every evening, and lasted for longer periods. The lump grew steadily larger, and she had recently been unable to take any solid food for fear that the pain would increase. There was also a history of obstinate constipation.

Condition on Examination.—The patient was ill-nourished and anæmic. The only physical sign present was an ill-defined lump in the right iliac fossa, which felt much like a thickened coil of intestine; pressure over this produced a gurgling sound. Her troubles were at first attributed to hysteria, but a few days after admission I saw the patient in one of her periodical attacks of colic. It was a remarkable sight: a great coil of distended gut, almost as large as the tyre of a motor bicycle, was seen running obliquely across the abdomen from the right iliac fossa to the left lumbar region. There was marked visible peristalsis, accompanied by occasional gurgling. The abdomen was greatly distended and tympanitic to percussion, and the patient suffered agonising pain. A diagnosis of chronic obstruction was made, and exploratory laparotomy was decided upon.

Operation.—A median incision was made below the umbilicus and a small amount of clear serous fluid was found in the peritoneal cavity. A white glistening mass about the size of a large orange was brought out of the incision. It had a peculiar wormy feel, not unlike an intussusception. On tracing it, the lower end was found to be continuous with the last inch or two of the ileum, near its junction with the large intestine; and the upper end of this mass was found to be continuous with a loop of ileum, which was enormously distended and covered here and there with flakes of coagulated lymph. The mass, together with the dilated loop of gut, was clamped and removed, a triangular piece of mesentery being also excised. The remaining ends of the intestine were closed by the usual Czerny-Lembert sutures, and a lateral anastomosis was performed between the ileum and the ascending colon.

Recovery.—On the ninth day after operation sutures were removed. The patient made an uneventful recovery, and was discharged cured about a month after the operation; her general condition had greatly improved.

Specimen.—The mass removed was ovoid in shape, measuring 6 in. in its long diameter and 3½ in. in its short diameter, and was found to consist of a complete adventitious fibrous sac probably formed by the organisation of sero-fibrinous exudation. On carefully dissecting into the sac, it was found to contain five loops of small intestine closely compressed and adherent to each other, and measuring 4 ft. 2½ in. in length. The dilated and hypertrophied portion of gut above the adventitious sac was 3½ in. in width and 1 ft. 1½ in. in length. Thus a total length of 5 ft. 4 in. of ileum was successfully removed.

I am indebted to Dr. J. Jhirad for able assistance at the operation.

A NOTE ON THE TREATMENT OF CHRONIC ULCERATION OF THE LOWER EXTREMITIES.

BY R. KELSON FORD, M.R.C.S. ENG.,

LATE OF THE BAPTIST MISSIONARY SOCIETY, TAI YUAN FU, SHANSI, NORTH CHINA.

FEELING, as I do, that the line of thought followed below deserves considerable attention, I venture to quote a single case in its support. Chronic non-specific ulceration of the legs and feet is a condition too well-known to need description here. Treatment is usually very tedious, and the complaint is often a cause of despair to the sufferer, and of exasperation—or apathy—to his attendant, especially in the case of those patients who, finding it difficult to lie up for a long period, are the chief sufferers.

The bluish discoloration of the skin seen in the more stubborn of these cases is a sign of deficient blood-supply. It is in some instances a precursor of ulceration, and always a most potent factor in the delay of cure. Hence, any measures which tend to increase the circulation of the part may be expected to hasten cure very markedly. Acting on the theory that the arterial supply to the extremity is increased by dilatation of the artery consequent on paralysis of the nerve plexuses in its walls, Leriche[1] practised the operation of sympathectomy. Removing a portion of the wall of the femoral artery to interrupt the vaso-constrictor fibres, he obtained peripheral dilatation in the leg. This effect started to pass off before the end of a week, and had ceased to be evident after a month. This method he used for such conditions as Raynaud's disease, trophic ulceration, prevention of gangrene, &c. Following on this, but desiring to produce a more prolonged effect, Mr. Sampson Handley[2] employed alcohol by injection into the walls of the femoral artery, and successfully treated cases of already established gangrene by this means. Few would deny that injection is simpler and safer than sympathectomy, and the results so far do not seem to show any advantage in favour of the latter. Further, sympathectomy was done for simple conditions, such as trophic ulceration; I would therefore ask—could not the method of vaso-constrictor blockage be applied to *all* forms of ulceration of the extremities? Alcohol, however, presumably paralyses these plexuses for at least a year (arguing from analogy—e.g., in the case of its employment for the treatment of trigeminal neuralgia), which is considerably longer than may be supposed necessary in the case of ordinary ulcerations.

In the following case, therefore, a local anæsthetic was employed instead:—

A Chinese male, aged 52, who had come two days' journey by cart for treatment, was admitted to the Mission Hospital, Tai Yüan Fu, early in September, 1922, suffering from chronic ulceration of the right ankle and dorsum of the right foot of several months' duration. The skin surrounding the affected area was bluish. The ulceration was superficial, though there was one area of about the size of a florin on each side of the ankle which was deeper. No history suggestive of syphilis was obtained.

The region was first cleansed by soaking daily in warm hypertonic saline solution for ten days, dry dressings being applied at night. During this period no improvement was noted apart from removal of crusts, discharge, &c. The common femoral artery was then exposed under chloroform anæsthesia, its sheath opened and its walls injected with 5 per cent eucaine solution at one point in each quadrant of its circumference. Less than 0·5 c.cm. of solution was used altogether.

The dressings applied before operation were left undisturbed until the fourth day after, when all superficial ulceration was found well healed: the skin was of normal healthy colour and the two deeper ulcers had markedly improved. They healed rapidly afterwards. The only complaint by the patient was of some tingling in the left thigh and leg on the day after operation. He was only under observation for a further fortnight, during which nothing untoward was noted, and was discharged as cured.

Remarks.

It might be suggested that the simple rest and cleansing fully account for this result, but I am strongly of opinion that it was much too striking to be disposed of in that fashion and did not occur in other cases treated only by these means. The ulcers were not merely dried, but were firmly healed, and the surrounding skin was uniformly of a healthy appearance. Never before have I seen such a rapid and satisfactory result as this, though it is regretted that the patient could not be followed up.

Circumstances unfortunately prevented repetition of this experiment. This case is reported, however, as it appears probable that such a procedure may prove of benefit in other cases of this description, and possibly also in those of varicose ulceration of the lower extremity. Should it appear desirable to aim at prolonging vaso-dilatation somewhat, the use of quinine urea hydrochloride (½–1 per cent.) in conjunction with eucaine or novocaine might prove effective, though some hold that it only acts on nerve terminals. In cases where there is no fear of gangrene, this method might prove of equal service in cases of bilateral affection, and even in cases of early gangrene it appears to me to offer chances, by reason of its transient effect, not available by any other means.

Portsmouth.

[1] Annals of Surgery, October, 1921.
[2] THE LANCET, 1922, ii., 173.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

SECTION OF SURGERY; SUB-SECTION OF PROCTOLOGY.

ULCERATIVE COLITIS.

A MEETING of this sub-section was held on May 9th, with Sir CHARTERS SYMONDS, the President, in the chair. Sir HUMPHRY ROLLESTON introduced a discussion on Ulcerative Colitis. His remarks appeared in full in THE LANCET of last week.

A Disease of Low Resistance.

Sir THOMAS HORDER said that one of the most striking features of the disease was its chronicity; by the use of the sigmoidoscope ulcers were still visible when all symptoms had disappeared and the disease was apparently cured. He therefore regarded the disease as a general one of low resistance to a certain infection, resembling in this respect pulmonary tuberculosis. As regards treatment, appendicostomy was required only if the patient were in a low state; if the disease was less severe much could be done by simple rest in bed in the open air. The Trendelenburg position should be adopted for a few hours every day in order to relieve the congestion of the colon which was one of the features of the disease. The diet should be as full as the patient could tolerate without causing diarrhœa. He found tonic intramuscular injections useful and employed vaccines as supplemental to this treatment, but without placing much reliance on the latter. Normal horse serum was also of use. There was a danger from over-energetic measures; in one case marked improvement followed the cessation of all treatment other than rest and dieting, where the patient had been going rapidly downhill under more vigorous measures. In all cases patients should be warned that a long convalescence was inevitable; three months should be allowed to elapse after the cessation of active symptoms before the patient was allowed to return to his ordinary activities.

Improved Results from Appendicostomy.

Mr. J. P. LOCKHART-MUMMERY pointed out that since the last discussion upon this subject, when the mortality of the disease was about 50 per cent., there had been a notable improvement in the results of treatment of the disease. Thus amongst 70 cases, which included all those at St. Mark's Hospital and in his private practice during the last nine years, the mortality was 15 per cent. The disease, which started in the solitary follicles from which ulceration spread to the surrounding mucosa, showed striking variations in severity; there might be a solitary ulcer or almost the whole surface of the colon, an area about half that of the body surface, might be involved. In many cases the disease arose from secondary infection with other organisms of a colon previously damaged by bacillary, amœbic, or sand dysentery. In one case a man who had previously suffered from several mild attacks of dysentery had, after drinking milk infected with streptococci, developed a severe ulcerative colitis from which he almost died. It was the variation in the organisms of secondary infection which was responsible for the differences in severity of the disease; the commonest were a paratyphoid bacillus and streptococci and staphylococci. The best results in treatment were obtained by appendicostomy, combined with the replacement of the organism of secondary infection by the Bulgarian bacillus, when the latter was possible; the method by which streptococci and staphylococci could be replaced had yet to be learned. A specially interesting type of ulcerative colitis was due to pneumococcal infection; two cases of this kind had occurred in his practice, both characterised by excessive hæmorrhage and a high temperature; neither case had pneumonia. Diagnosis could only be made by means of the sigmoidoscope, and by means of this instrument it was possible to observe the natural healing of the ulcers. It was remarkable that healing was often complete; only in exceptional cases was there any appreciable scarring after the most severe ulceration. Stricture of the colon was therefore very rare, except as a sequel to the operation of cæcostomy. For this reason he preferred appendicostomy to cæcostomy in the surgical treatment; the former had the added advantage of being a procedure possible under local anæsthesia when the patient was in extremis. A catheter should not be tied into the stoma but passed as required, and the stoma should not be allowed to close for at least 12 months. As regards the solutions used for irrigating the colon, these should be non-toxic and preferably hypotonic to avoid dehydrating the patient, and they should be used at blood heat. Some of the silver salts were excellent, but silver nitrate should not be employed, as Mr. Lockhart-Mummery had seen a case of severe argyrism from its use. Of all solutions the speaker liked best a hypotonic solution of sea salt, while solutions containing the Bulgarian bacillus were also excellent. Finally, the patient should be warned of the probability of recurrence from trifling exciting causes, such as chill.

Bacteriology of Ulcerative Colitis.

Dr. W. E. CARNEGIE DICKSON said that while the primary organism responsible for ulcerative colitis might be one of very many, such as the *Entamœba histolytica*, *B. dysenteriæ*, *B. paratyphosus*, *B. pyocyaneus*, the pneumococcus, streptococcus, or enterococcus, &c., the infection speedily became a mixed one. This was an essential point to be remembered in treatment by vaccines and sera. Thus in some forms of bacillary dysentery in which a vaccine of the bacillus could not be used on account of its extreme toxicity, the specific serum might be used with a mixed vaccine from the organisms of secondary infection. When treating cases of ulcerative paratyphoid infection with vaccines he had greater success from such mixed vaccines (including the patient's own strain of *B. coli*, streptococci, &c.) than from a pure autogenous vaccine of the primary organism. Originally he had laboriously isolated the various organisms and prepared a vaccine from the one which appeared to be the causal one, but now, by using a variety of culture-media, he was able to obtain a mixed bacterial emulsion closely resembling the mixture of organisms seen in a direct film. From this emulsion he made the vaccine. By this method he was able to grow all the organisms concerned in a few days, an advantage when a report was required as to the nature of the organisms, since the full scientific investigation, by isolating each individual organism, might well occupy weeks or months. Further, during this period fresh organisms, originally kept in check by others, often appeared. Most of these slowly-growing organisms were fortunately unimportant, although one such, the *B. pyocyaneus*, was, he thought, of considerable importance in connexion with colitis. This organism he had found in a number of cases of colitis often associated with severe ulceration and hæmorrhage, and in some of these cases, which clinically resembled paratyphoid fever, he had been able to obtain the organism from the blood and urine. Dr. Dickson emphasised the importance of regarding mixed vaccines as only one item in the treatment, which should include the eradication of a focus of infection in the teeth, sinuses, or the appendix, if such a focus could be found. The last source, the appendix, he believed often acted as a reservoir for the organisms after they had been driven out of the colon; a member of his family who had suffered from intermittent attacks of colitis for nine years had been cured by appendicectomy at the age of 10. It was interesting that cases of colitis commonly exhibited a leucopenia chiefly affecting the polymorphs; he suggested that the beneficial action of normal horse serum was due to its action in raising the white-cell content of the blood. In conclusion, Dr. Dickson suggested that the disease might be in some way connected with vitamin deficiency.

Ulcerative Colitis and Bacillary Dysentery.

Prof. L. S. DUDGEON, whose communication was read by Dr. A. L. URQUHART, referred to the divergence of views as to the identity or otherwise of ulcerative colitis and amœbic or bacillary dysentery. While Sir W. Hale-White believed the diseases were distinct, such an authority on dysentery as the late Dr. F. M. Sandwith held that ulcerative colitis was dysentery occurring in a population where dysentery was not endemic. Dr. Sandwith supported this belief by referring to the identity of the symptoms during life, and of the lesions as seen in the post-mortem room. Dr. H. P. Hawkins, in 1908, concluded that better bacteriological methods would lead to a solution of the problem, and for this purpose obtained scrapings from ulcers visible through a rectal speculum. From this material Prof. Dudgeon was able to isolate a Flexner bacillus from a case of ulcerative colitis, although repeated examination of the stools had been negative. Bacteriologists with experience of bacillary dysentery knew how difficult it was to isolate the organism from fæcal material, so that Dr. Hawkins's method was of special value and had been adopted by Manson-Bahr and Gregg. Since the war six cases of sporadic so-called "ulcerative colitis" had yielded in one case a Flexner bacillus, in four a hæmolytic colon bacillus in almost pure culture, and in one case hæmolytic streptococci and a *Staphylococcus aureus*. He had not met with a case of ulcerative colitis from which an amœba had been isolated or which had had a liver abscess. The lesions of ulcerative colitis always resembled closely those of bacillary dysentery; in the East during the war he had, however, seen similar symptoms and similar lesions in cases yielding *B. paralyphosus* B or C. He was therefore opposed to the view that ulcerative colitis and true dysentery were of necessity caused by the same organisms. In every case the infective agent could be determined by an investigation on the following lines: (1) Examination of the bowel by means of the sigmoidoscope. (2) If ulceration were present, material from the floor of the ulcer should be submitted to detailed bacteriological and protozoological investigation. (3) Repeated examination of the fæces. (4) Examination of the blood, more especially in relation to the presence of immune substances in the serum.

Value of Antidysenteric Serum.

Dr. A. F. HURST said that the first description of the sporadic ulcerative colitis occurring in England was published in 1875 by Sir Samuel Wilks, who pointed out that it was anatomically indistinguishable from dysentery. Saundby in 1906 and Hawkins in 1909 came to the same conclusion as a result of clinical and pathological investigations but without using the sigmoidoscope. In a report on an epidemic of "idiopathic ulcerative colitis," which resulted in 118 deaths in the Lancaster County Asylum in 1898, Gemmell expressed his belief that this condition, which had always been well known in asylums, was really dysentery. Vedder and Duval, working under Flexner in 1902, proved that epidemics of "dysentery" occurring in institutions in America were caused by the *B. dysenteriæ*, and two years later Eyre showed that asylum dysentery in England was also caused by this organism. All attempts, however, to isolate the bacillus from sporadic cases had failed, though in a small number the blood had strongly agglutinated Flexner's bacillus. A diagnosis of ulcerative colitis could only be made with the sigmoidoscope. It was first necessary to exclude a growth beyond the reach of the finger. It was then necessary to decide what form of colitis was present, to ascertain the severity of the condition, and to exclude the possibility of amœbic dysentery, even if the examination of the stools had proved negative, for Dr. Hurst had seen a few cases in which this infection developed in patients who had not been out of England. An anæsthetic was very rarely required, as the passage of the instrument did not cause pain unless the anal canal was inflamed; in such cases a cocaine sempule should be introduced a quarter of an hour before. If the sigmoidoscope was carefully introduced under visual guidance without inflation and only as far as it went without difficulty, there was no danger, the few cases in which perforation had occurred having all apparently been due to its blind passage. In ulcerative colitis the mucous membrane was bright red and thick, the swelling being particularly obvious in the normally thin Houston's folds. It bled very readily when touched, and its surface was covered with blood-stained, purulent mucus. Superficial ulcers were invariably present, but in early cases they might be so small that they were difficult to recognise. More frequently they were of larger size and were sometimes so extensive that only small islets of mucous membrane were left, which might feel like small, flat polypi on rectal examination, the floor of the ulcers being mistaken for the surface of the mucous membrane. The ulcers were always superficial with irregular edges, and the thick mucous membrane was not undermined. The floor of the ulcers appeared greyish-yellow when the blood and mucus were wiped from their surface. In some cases the sigmoidoscope showed that the rectum or the rectum and lower part of the pelvic colon were alone inflamed, as normal mucous membrane was found higher up, but it was doubtful whether the proximal part of the colon was ever involved without the pelvic colon and rectum. Dr. Hurst had often watched with the sigmoidoscope the process of healing. When healing occurred new mucous membrane formed; owing to the superficial nature of the ulcers very little scarring occurred and strictures never developed. When the sigmoidoscope was passed after complete recovery from ulcerative colitis or bacillary dysentery, nothing more was seen than some very slightly puckered areas in the mucous membrane, which might be a little paler and smoother than normal. During the war Dr. Hurst had several opportunities of examining the colon with the sigmoidoscope in cases of acute dysentery, and since then he had examined a considerable number of chronic cases in the same way. The differences between the appearance of the mucous membrane in amœbic and bacillary dysentery were so marked that a diagnosis could be made with the sigmoidoscope of one from the other with a considerable degree of certainty. He was much struck from the first, however, with the fact that the appearance of the mucous membrane in bacillary dysentery was indistinguishable in life, as Wilks had observed post mortem, from that of the sporadic ulcerative colitis which occurred in England. On the other hand, in amœbic dysentery small, round, red elevations were seen on the otherwise normal-looking mucous membrane, corresponding to the collection of broken-down material in the submucous tissue caused by the invasion of the *Entamœba histolytica*. In the centre of each elevation was a depressed yellowish ulcer, caused by the rupture of the submucous abscess through the mucous membrane.

In view of the very favourable effects Dr. Hurst had obtained in chronic as well as acute bacillary dysentery by the intravenous injection of large doses of the polyvalent antidysenteric serum of the Lister Institute, he decided to try the effect of the same treatment in ordinary ulcerative colitis. The results had been remarkably favourable. They were not, he believed, due simply to the use of horse serum, but were definitely specific. In a severe case under his care he tried the effect of large doses of ordinary horse serum; no improvement resulted, but the administration of antidysenteric serum after a week's interval had the usual rapidly favourable result. He generally began with an injection of 40 c.cm. intravenously; this was followed on consecutive days by injections of 60, 80, and 100 c.cm. The four injections were often sufficient, but it might be necessary to repeat the maximum dose two or three times. A considerable reaction often occurred; the patient's temperature rises and a profuse erythematous rash appears. The joints might become swollen and painful. But these symptoms generally only lasted a few hours, and never longer than a few days. Dr. Hurst thought they were less likely to occur if 15 gr. of calcium lactate were given three times a

day, the day before and during the days of treatment. No anaphylactic symptoms had been observed, even in patients who had previously had serum, but care was always taken to desensitize the latter by very small preliminary injections, and the same precautions would be necessary in any patient who was subject to asthma. He had used this treatment in about ten cases. Very rapid improvement had always occurred, though in one case in which appendicostomy had been performed some months earlier it was incomplete. A secondary streptococcal infection had apparently become grafted upon the original dysenteric infection, as complete recovery only took place after the removal of the teeth, which was followed by a temporary severe local reaction. An attempt to treat this patient with a vaccine prepared from streptococci isolated from the stools had to be given up owing to the violent reaction which followed the injection of only a quarter of a million bacteria. His colleagues, Dr. John Fawcett and Dr. J. A. Ryle,[1] obtained an equally satisfactory result in one case under their care. The treatment failed in two others, but in both of these they recognised the ulcerative colitis as being of a hypertrophic character quite different from the ordinary type, so that in all probability it was caused by a different infection. One of these cases died shortly afterwards from perforation, which rarely, if ever, occurred in the usual form of ulcerative colitis, and in the other an appendicostomy, which was subsequently performed, led to no further improvement. Dr. B. E. Jerwood [2] had also reported a case in which the patient was "incontinent, very weak, wasted, and quite determined to die," and in which rapid recovery followed treatment with antidysenteric serum.

In most cases the improvement was as rapid as that of amœbic dysentery with emetine and epidemic bacillary dysentery with intravenous antidysenteric serum. In Dr. Hurst's first case the patient was so ill when first seen that he advised an immediate appendicostomy. In spite of this the patient went steadily down hill, and a fortnight later, when the first injection was given, his condition appeared to be almost hopeless. But in three days the blood had disappeared from the stools; in five the sigmoidoscope showed that the mucous membrane was entirely free from ulcers, though still a little red, and in ten days the stools were normal and the mucous membrane was perfectly healthy, though the ulceration before the first injection was most extensive.

Dr. Hurst had discussed the details of treatment by rest, diet, albargin injections, and charcoal in the Guy's Hospital Reports for January, 1921, when he first described the results obtained with antidysenteric serum. They were of great importance before the introduction of the serum treatment, but recovery rarely took place in less than six months, and a year was often required. Until three years ago he was, therefore, inclined to advise appendicostomy as an additional measure in all cases of any severity. But since he had used large intravenous doses of serum he had not found it necessary to advise appendicostomy in a single case, and had only occasionally had recourse to albargin injections. He realised, however, that there must be cases, such as the two under the care of Dr. Fawcett and Dr. Ryle mentioned, in which the pathology was different and in which serum would be useless. In these the other methods of medical treatment and appendicostomy would be required. No case could be regarded as cured until the sigmoidoscope showed that the mucous membrane was perfectly healthy. It was then necessary to keep the stools soft by the use of paraffin or saline aperients for several weeks until the newly-formed mucous membrane had overcome its original vulnerability to mechanical irritation. He concluded with a plea for the more extensive use of the sigmoidoscope. It should no longer be regarded as an instrument for the proctologist or surgeon alone; it should be used by every physician, and to treat a case as colitis without first visually examining the rectum and pelvic colon should be regarded as equally as absurd as the treatment of a case of tonsillitis without first looking at the tonsils.

[1] Guy's Hospital Gazette, 1923, xxxvii., 136.
[2] Ibid., 1921, xxxv., 292.

A Surgical View.

Sir CHARLES GORDON-WATSON was much impressed by the results obtained by Dr. Hurst with antidysenteric serum, and thought that this form of treatment deserved a further trial. He agreed as to the identity of the lesions in ulcerative colitis and bacillary dysentery, and added that many cases of bacillary dysentery died during the South African War which might have been saved by the surgical treatment now employed for ulcerative colitis—namely, appendicostomy. This operation, if it were to be successful, must be performed early; there was still a tendency to call in the surgeon only when the patient was in extremis. In a recent case, for instance, a patient died of a perforation which occurred on the morning fixed for operation. The stoma should not be allowed to close too soon. As regards a primary focus, he had on one occasion found a subacutely inflamed appendix which he removed, thereby curing the patient, and in another case drainage of an antrum had cured a patient who had had repeated attacks. He also had seen severe reactions follow the extraction of two septic teeth, but cure in this case was much delayed. After a trial of many fluids he had found flavine the best for irrigation of the colon. On one occasion only had he found a vaccine helpful; this patient had had several attacks since 1911, when an appendicostomy was performed, and was going downhill in spite of reopening of the appendicostomy, when a mixed vaccine cured him for a time.

Mr. DOUGLAS DREW had given up appendicostomy since he had had a fatal case, and now always performed cæcostomy. He gave details of one case where cæcostomy had produced temporary benefit; a severe relapse occurred and he was persuaded to operate again with a view to performing colectomy, which, however, proved impossible owing to the condition of the bowel. He therefore brought the cæcum out at the middle line as a permanent colostomy with a definite improvement for two years.

The PRESIDENT remarked on the fact that whereas some cases were reported as cured by a certain form of treatment, others appeared to be refractory and were in no way benefited by the same treatment. He also commented on the success which had attended appendicostomy and the valuable results obtained by some of the speakers with antidysenteric serum.

Reply.

Sir HUMPHRY ROLLESTON, in reply, said that it would appear that the majority of cases of chronic ulcerative colitis were, in fact, cases of bacillary dysentery from which the organism could not be recovered. The physician regarded the disease from the point of view of a general condition, whereas the surgeon devoted his attention to the local condition. Since stricture was a rare sequel in this country and common in America it would appear to be possible that the disease existed in two varieties.

SECTION OF EPIDEMIOLOGY AND STATE MEDICINE.

A MEETING of this section was held on May 11th, Dr. R. J. REECE, the President, being in the chair.

Sir WILLIAM HAMER read a paper entitled

The Ultravisible Viruses Considered from an Epidemiological Point of View.

He said that the modern history of the subject dated from Buchner's demonstration in 1897 of an intracellular enzyme in the yeast cell, and pointed out that the germs of the bacteriologist might perhaps assume importance in disease mainly by reason of their being able under certain conditions to live in symbiosis with the generally speaking more deadly though more minute ultravisible living particles. There were, in fact, important inter-relationships

between the ultravisible germs and the bacteria. These had been compared to those between man and the tools he worked with; or alternatively to the partnership, on a far vaster though probably less important scale, between alga and fungus connoted by the term lichen. Two questions had to be considered: (1) were germs hitherto regarded as causal really primarily concerned with fermentations and with diseases, or merely concomitants—i.e., associated organisms; (2) what was the status, qua organisation, of the ultra-microscopic "enzymes"? In dealing with the first question, the speaker referred to Lord Lister's classical researches on the souring of milk, and quoted the remark that "it is far from impossible that there may exist ultra-microscopic organisms, as real, as distinct in structure, and as potent in their effects as is the *Bacterium lactis*." In these words Lord Lister remarkably anticipated the results of later research. He saw as in a glass darkly the phenomena now familiarly described as those of "sporting" or "mutation" in bacteria, and clearly discerned that ultra-visible particles might play a part in these. Passing to the second question, Sir William Hamer said that the experimental results suggested that to each germ must be assigned a very complex constitution qua enzymes; one enzyme might be represented by numerous particles in a condition of great activity and apt for rapid multiplication; another might be poorly represented by particles which were in an inactive or dormant condition. He outlined the present state of opinion respecting the physico-chemical status of catalysts and enzymes, and considered that it would simplify things if we boldly declared that many "organic catalysts" were really living organisms. He referred with approval to the late Prof. Minchin's speculations regarding the simplest forms of life and their origin. An outstanding difficulty of the epidemiologist, confronted with all the later developments of the germ theory, was that of explaining persistency of type in epidemic disease—persistency such as that displayed, for example, by measles or small-pox. In the case of ultravisible germs of epidemic disease, it might be that, while variability of type was favoured by association of the primary ultravisible organism with various satellite secondary invaders, there was an inevitable return, at appropriate intervals, to phases of influence which again and again repeated themselves. Just as syngamy prevented a species from breaking up into strains, so some equilibration between a primary influence and secondary influences encountered in the bodies of the hosts might bring about major waves of epidemic disease. De Vries had hinted at something of this kind in his "periodic mutations" of the higher plants, and analogous phenomena would at once suggest themselves to all those who had followed up Creighton's teaching with regard to influenza, scarlet fever, and diphtheria.

The paper was discussed by the PRESIDENT, Dr. J. A. ARKWRIGHT, Dr. W. MAIR, Dr. R. DUDFIELD, Dr. J. C. MCVAIL, Dr. MAJOR GREENWOOD, and Dr. W. BUTLER.

LIVERPOOL MEDICAL INSTITUTION.

A MEETING was held on April 26th, Prof. J. HILL ABRAM, the President, being in the chair.

Mr. J. ST. GEORGE WILSON read a note on

Broncho-pneumonia in a Stillborn Fœtus, Associated with Maternal Death.

The mother, aged 49, was a 14-para; all previous labours normal. The membranes ruptured 30 hours before onset of labour. The first stage occupied three hours. Forceps extraction failed. As the cord was prolapsed and pulseless the fœtus was perforated, but there was still failure to deliver. The mother died five and a half hours after the onset of labour owing to shock. The fœtus weighed 4·72 kilos; broncho-pneumonia was demonstrated in both lungs, streptococci were found in the alveoli and cultured from the spleen. The reaction in the lungs was so marked that the inference drawn was that pneumonia commenced before the onset of labour, and it was surmised, in the absence of post-mortem examination, that fœtal infection was a contributory cause, if not the sole cause, of the sudden death of the mother.—Dr. NORMAN B. CAPON stated that caution was necessary in assuming that micro-organisms found in a fœtus which had died during labour were responsible for any pathological lesion discovered. This was especially true when perforation had been performed.

Mr. F. J. STRONG HEANEY read a short paper on

Cystoscopy and Pyelography.

He briefly reviewed the present position of cystoscopy and pyelography in the diagnosis of diseases of the bladder, ureters, and kidneys. He showed a series of lantern slides exemplifying the following lessons: 1. Cystoscopy by itself excludes the bladder and localises one or other kidney as the active septic focus in certain cases of chronic pyuria. 2. In the absence of tubercle bacilli in the urine cystoscopic examination in conjunction with clinical signs enables one to make a definite diagnosis of tuberculous kidney. 3. The appearance at the ureteric orifice in cases of intramural ureteral calculus alters when the stone remains a considerable time in situ. 4. In some cases of hydronephrosis it is not possible to demonstrate the condition by aspiration, whereas a pyelogram may successfully overcome the difficulties of diagnosis. 5. In cases of obstruction the appearances of the ureterogram or pyelogram vary according to the level of the obstruction. 6. A ureterogram differentiates between a phlebolith or mesenteric gland and a ureteral calculus. 7. The normal pyelogram enables one to exclude the possibility of a kidney condition in favour of other intra-abdominal lesions.

Dr. J. MURRAY BLIGH read a paper on Unexpected Death in Children. He discussed in particular its relation to lymphatism and the clinical signs indicative of this condition.

ROYAL MEDICAL BENEVOLENT FUND.

AT a recent meeting of the Committee 25 cases were considered and £250 voted to 20 applicants. The following is a summary of some of the cases relieved:—

Daughter, aged 19, of M.D.Durh. who practised in Staffordshire and died in 1917. Applicant is a probation nurse at £40 per annum, but owing to a bad illness and an operation for appendicitis is unable to continue work until fully recovered. She asks for help towards paying convalescent home charges as her mother is unable to meet the expense incurred. Voted £5.

Widow, aged 37, of M.B.Vict. who practised in Manchester and died in 1914. Applicant has been able to support herself and daughter, aged 14, up to the present time, but she had an illness which increased expenses and also prevented her from earning. During the last 12 months she earned £100 by painting. Applicant is asking for a grant towards her daughter's schooling as she is in need of more advanced tuition. The Committee voted her a small grant to render her eligible for education help from the Royal Medical Benevolent Fund Guild.

Daughter, aged 53, of M.R.C.S. Eng. who practised in Manchester and died in 1876. She is a temporary clerk, but owing to illness has contracted debts and asks the Fund to help with her expenses. Voted £6.

Surgeon, aged 79, who was a house surgeon at a hospital in Wales for 12 years. He came to London during the coal strike and failed to secure an appointment. Stricken with paralysis he and his wife had to live on £100 they had in hand and then had to sell their belongings to enable them to exist. His wife is unable to earn anything owing to eye trouble and recently underwent an operation at Moorfields and has to be led about. The sole income is the applicant's Old Age Pension and £26 allowed by the Fund, and the R.M.B.F. Guild have supplied clothes.

Daughter, aged 43, of L.R.C.P. Lond. who practised in London and died in 1901. Has phthisis and is not strong. A friend at one time made her an allowance but this has now ceased. She had a post as lady help but has had to give this up and go into a sanatorium and asks the Fund to help with expenses. Voted £15.

Subscriptions may be sent to the Hon. Treasurer, Sir Charters Symonds, K.B.E., M.S., at 11, Chandos-street, Cavendish-square, London, W. 1.

Reviews and Notices of Books.

ENDOCRINOLOGY AND METABOLISM.

Presented in their Scientific and Practical Clinical Aspects. By 98 Contributors. Edited by LEWELLYS F. BARKER, M.D. (Toronto), LL.D. (McGill). In five volumes, totalling 4770 pages. London and New York: D. Appleton and Co. 1922. £12.

WHEN von Noorden's great treatise on Metabolism and Practical Medicine was made available to English readers in 1907, it must have seemed unlikely to many of them that the latter part of the title would ever be justified, and yet the change which has since come over text-books in all branches of medicine bears evidence to the influence of that work and to its author's intuition. So, too, we believe that Prof. Lewellys Barker is correct in his surmise that the time is ripe 15 years later for the publication in reasonable compass of all the essential facts that bear upon metabolism and the internal secretions in health and disease. The editor and his associates have succeeded in so balancing their materials—anatomical, physiological, chemical, experimental, pathological, and clinical—as to have produced a book of value both to research workers and actual medical practitioners, and that within a readable compass of four volumes, for the fifth is taken up with references and indexes. The writers of the several articles are all competent workers in the subjects allotted to them; they have exercised sound critical judgment in the sifting of statements and claims, and they have presented a valuable compendium of established facts in which mere speculation finds little place. The clinical descriptions of disease which accompany the physiological and pathological summaries are a new feature in medical literature. The medical student has been trained in his preliminary scientific and in his hospital education to bring his physiological conceptions to the bedside, but has found the difficulty almost insurmountable of carrying physiological thought with him into actual practice. Hitherto, it has been difficult for the busy practitioner to correlate the advances in physiology with applied medicine and surgery. In these volumes the correlation lies ready to his hand.

Volume I. contains general considerations regarding endocrinology, including an historical survey of the subject, and deals with the thyroid and parathyroid glands and the hypophysis cerebri. Volume II. treats of the pineal, suprarenal, and thymus glands, the gonads, the mammary glands, placenta, spleen, liver, pancreas, salivary glands, stomach, and intestines, all considered as endocrine organs with possible internal secretions. The special anomalies of giantism, dwarfism, and infantilism are described, and the inter-relationships of endocrine glands considered. Volumes III. and IV. are devoted to normal and abnormal metabolism. Volume V. contains, it has been said, the general index and bibliography.

Among the most interesting of the sections are those on the physiology and experimental pathology of the thyroid gland by Swale Vincent, and on hypothyroidism by Nelson W. Janney. In the first volume the whole of Section III., which deals with the parathyroid glands and particularly Lewellys Barker's able survey of the clinical syndromes due to disorders of these glands, are worthy of the attention of clinicians. In the second volume Benson A. Cohoe on clinical syndromes due to suprarenal diseases, and R. G. Hoskins on the inter-relation of the endocrine organs are of especial interest; and in Volume III. Ringer and Baumann on the carbohydrates and their metabolism and John R. Murlin on normal processes of energy metabolism stand out. In Volume IV. D. D. van Slyke writes on acidosis, W. T. Longcope and G. M. Mackenzie on hypersensitiveness and protein intoxication, and Rollin T. Woodyatt on the pathological metabolism of diabetes mellitus. Two curiously divergent accounts of pellagra by Ward J. MacNeal and E. V. McCollum serve to illustrate both the uncertainty of our knowledge and the impartial attitude of the contributors.

It has been well said that endocrinology needs a leadership willing to admit the magnitude of its shortcomings. The compendium before us establishes such a leadership with true scientific impartiality. The survey presented will help the physician to distinguish fact from fancy in a field in which the imagination has recently been allowed free play. The sifting has been rigorous, and some readers may be disappointed to find how many of the advantages claimed for "organotherapeutic" preparations rest upon no solid foundation either clinical or experimental. So widespread is the faith in promiscuous endocrine therapy that the negative conclusions of some of the workers in this field deserve quotation. John T. Halsey submits to critical examination the administration for medical purposes of various preparations of animal origin in his chapter on organo-therapy and hormone-therapy. He admits the value of thyroid preparations in cretinism, myxœdema, and obesity, but is unconvinced by many of the claims made as regards mental diseases, epilepsy, deafness, asthma, nephritis, and blood dyscrasias. Even in skin diseases he regards the use of thyroid extract as of only limited value. Concerning parathyroid, he says "there are reports of its more or less successful use in tetany, paralysis agitans, eclampsia, epilepsy, and chorea, but it is only in the treatment of tetany that parathyroid therapy rests on a firm and rational basis." He is doubtful whether the anterior portion of the pituitary has yielded results justifying the enthusiasm of its advocates. Suprarenal extract has given brilliant results in the relief of asthma, and, of course, is invaluable as a local vaso-constrictor in ophthalmic and nasal operations, but further than this he not inclined to go. Halsey has never seen any effects, good or bad, follow the administration of parathyroid preparations in paralysis agitans. As to testicular extracts given by mouth, the evidence shows them at best merely of suggestive therapeutic value.

G. N. Stewart, writing on the significance of the suprarenal glands, holds that there is no foundation for a supposed rôle of epinephrin in reactions associated with the expression of the emotions. The same chapter contains the observation, "the elaborate theory of the reciprocal relations of the endocrine organs originated by Eppinger, Falta, and Rudinger gains no support from such experimental observations as have been made either upon the epinephrin store or the epinephrin output." Hoskins, writing on the relation of the suprarenal glands to circulation, mentions the general impression that epinephrin acts as a vaso-constrictor and raises blood pressure, and observes that vaso-dilatation is a characteristic, and, perhaps, the most significant phase of the vaso-motor reaction to epinephrin. But, in summing up, he concludes that "the most that can be definitely said at the present time is that epinephrin in neither a vaso-constrictor nor a vaso-dilator substance, generally speaking, but is either, depending upon the dosage employed, the organ involved, and the condition of the organism as a whole." He protests that in many pharmacological experiments with epinephrin concentrations grossly out of proportion to those to which the tissues are exposed under normal conditions were employed. The entire pharmacology of epinephrin demands reinvestigation. The same author comes to the conclusion that there is little or no reliable evidence that the thymus has any true endocrine function. A. S. Warthin gives it as his experience that the majority of cases of diabetes (all adult cases and a few young adults) present a chronic pancreatitis. He is, moreover, strongly of the opinion that latent syphilis is one of the most important causes of chronic pancreatitis.

Hoskins, referring to the lack of proof that the various endocrine organs stand in intimate functional relationship with each other, finds facile theorising to have been indulged in by numerous uncritical

writers. A diagnosis of "pluriglandular dystrophy" or "pluriglandular syndrome" is more often mere camouflage for ignorance. C. E. de M. Sajous remarks, "If the general practitioner will take a personal interest in accurate diagnosis and carefully controlled therapy of the diseases of endocrine origin, he will give help that is much needed at this time." Practical medicine stands in need of iconoclasm of this sort, but it must not be supposed that the bulk of this book consists of denial or disproof. There remains an enormous mass of new facts which have passed the test of critical examination, and a further collection of observations which, though still unproven, are suggestive. Certain modern work is especially well set out here. Lewellys Barker's chapter on the clinical syndromes due to disorders of the parathyroid glands summarises most readably all the modern observations on this subject. J. P. Simonds's survey of the pathological anatomy and histology of the hypophysis is remarkably clear and includes the original observations of the writer. Philip B. Hawk contributes a chapter on water as a dietary constituent. He has proved by careful experiment that the evil effects of drinking water during meals are not only hypothetical but non-existent. His conclusion is that it is better to drink water with meals than between meals, since it aids gastric digestion if taken with well-masticated food. The idea that water dilutes the gastric juice and hinders digestion seems to be quite unfounded. Woodyatt deals briefly and succinctly with the dietetic management of diabetes. His method of calculating the "optimal" caloric diets is one of the best we have seen, particularly his formula for the proportion of fats to carbohydrate and protein. "Insulin" had not been introduced when these volumes were published.

The whole is a work which throws light as much on the common diseases of medical practice as on the obscure, and goes a long way towards the incorporation of experimental medicine and physiology in the everyday practice of physic. The book is admirably printed and full of beautiful illustrations.

PSYCHOLOGY AND PSYCHOTHERAPY.

The Mind and What we Ought to Know About It. The People's League of Health Lectures. Oxford Medical Publications. London: Hodder and Stoughton, Ltd. 1923. Pp. 252. 6*s*.

THIS series of essays by leading medical men opens with a stimulating paper by Dr. Bernhard Hart on Primitive Instincts, in which he sets his readers to study their conflicts and prejudices; then it passes on to what may be termed the old psychology. Dr. R. H. Cole casts aside Prof. Sherrington's belief in the incommensurable nature of the worlds of body and mind in telling us that "these two aspects of the reflex arc—the mental and the physical—are practically identical," so one need not interpret as a cry of despair his view that "a mental state connotes some nervous change in the individual, and without a proper grasp of this connection I can conceive no rational explanation of the workings of the mind." Yet to explain the mental state, let us say, of Mr. De Valera in terms of nervous change would seem a hopeless task.

One is surprised to find Dr. Rows discussing memory with no hint of the transfer of psychological interest to the subject of forgetting, and the light which that throws upon mental processes. Habit and Adaptation, and Fatigue and Sleep, are quite simply handled by Dr. Macnamara and Sir Robert Armstrong-Jones respectively, though the latter's summing up is not clear. "Remember that it is not the subjective feeling of fatigue that you feel, although it is present, but it is the objective symptoms that come on afterwards that are felt, and when they come on they take longer to clear up," he says. This is rather bewildering; and surely Sir Robert Armstrong-Jones does not believe the story of the three boys who killed themselves by keeping awake. Sir Frederick Mott describes the reciprocal influence of the endocrine glands and mental processes, and, illustrating his thesis by reference to war cases, concludes that "If doctors paid more attention to the mental state of their patients in relation to bodily disorders . . . Coué cult, Christian Science, and other forms of faith-healing would not have laid hold of the popular imagination so deeply." In the whole series the only reference to the work of Freud—and the public interest in his theories of the mind, whether it should be encouraged or not, is undoubted—is Sir Frederick Mott's bewildering allusion to a "Freudian doctrine" that "all dreams with fear are related to forgotten sexual experiences causing a mental wound"; surely this is not derived from the study of Freudian writers. Dr. W. A. Potts's lecture on Crime and Delinquency is a description of modern views and methods with a too brief account of the work already being done at Birmingham in the rational treatment of the criminal. This is a practical subject on which the public should be enlightened, and the lecture is in itself sufficient to justify the book. Dr. Tredgold, in his discussion of Mental Deficiency, is under the disadvantage of being unable to formulate proposals, though he points out the direction in which action might be taken and gives a general account of the varieties and causes of mental deficiency.

To put a subject like this before the public is inevitably a difficult task, but one trusts that the authoritative title of the book is not meant to be exclusive; there is quite a lot more we ought to know.

Conditions of Nervous Anxiety and their Treatment. By Dr. WILHELM STEKEL, Vienna. Authorised translation by ROSALIE GABLER. London: Kegan Paul. 1923. Pp. 435. 25*s*.

OF a series of seven volumes on "Disturbances of the Impulses and the Emotions" by this prolific writer the present volume is the first to be translated into English. Dr. Stekel says in the preface that the material could have been collected only on the basis of a private practice and that as a specialist he now seldom sees the same kind of material. This paradox is understood when we read his description of the anxiety attack and its equivalents, which include palpitation, paroxysmal tachycardia, nervous dyspepsia, pseudo-angina, hay fever, attacks of night sweating, vomiting and headache, migraine, faintness, and collapse, all of these being common in general practice. He maintains that every neurosis is caused by a psychic conflict, and denies the existence of the "actual neuroses" that Freud attributes to disturbance of sexual life, placing them beyond the sphere of psychotherapy. (It is surely a translator's error when we are told that Freud ascribes them to "sexual abuses.") He also gives examples to show that the anxiety attack can occur without sexual foundation. In the wealth of his clinical material Stekel stands almost alone, and if his facts are accepted his unreserved discussion of sexual details is justified. Especially interesting is his analysis of a "heart neurosis" (chap. xvii.), when he gives the patient's anamnesis and remarks that the doctor who listens to it "will come to the conclusion that cares, anxiety, worry, over-exertion and over-work are accountable for the terrors of the neurosis;" then follows an account of the analysis, which gave a picture totally different from that of the simple anamnesis. His analyses are not always profound, nor are his theoretical dissertations, but his cases are described with such fullness that the conclusions are often inevitable if his observations are accepted. But there is often a dogmatic—not to say slapdash—quality about the dicta which puts the careful reader on his guard. A case of gastric disturbance with vertigo is diagnosed "sausage poisoning" for the reason that "After a detailed inquiry she admitted having eaten a thin slice of sausage the previous evening, of which all the members of the household had partaken without harm" (p. 97); and it would be hard to crowd into a few lines more material for disputation than is found in the statement—lonely and unsupported—

that "the root of all desire to know is to be found in curiosity about sex, and a premature enlightenment of the children would certainly be injurious to the development of humanity" (p. 443). This defect is more regrettable because there is so much valuable clinical material and experiment recorded in the book, with practical observation that seems well supported; the author's remarks on epilepsy, for example, are cautious and at the same time original and stimulating, and are accompanied by a sufficiency of evidence.

The translation shows many blemishes. Concerning sufferers from heart neuroses we read: "Or else they have 'incipient calcination' which patients rightly look upon as a death sentence." And no wonder! Cyclothymia appears in three different spellings; "Jackson-epilepsy," "sinew reflex" for knee-jerk, and other departures from orthodox terminology are likely to receive criticism. But in spite of many defects the book is a useful addition to clinical psycho-pathology.

JOURNALS.

QUARTERLY JOURNAL OF MEDICINE.—The April number contains the following articles: The Sequelæ of Epidemic Encephalitis in Childhood, with Notes on the Prognosis as regards Complete Recovery, by Grace H. Anderson. This paper is based upon an examination of 38 cases in hospital in Glasgow. The chief points upon which stress is laid are the frequent occurrence of night wakefulness and excitability, and various psychical disturbances. Mental impairment was noticed chiefly in younger children and changes in disposition, invariably for the worse, in the older. The most troublesome habits were spitting and hyperpnœic breathing, for which no treatment was found effective.—The Cholesterol Content of the Blood in Anæmia, and its Relation to Splenic Function, by William MacAdam and Cecilia Shiskin. The cholesterol blood content was determined for varying periods in three cases of splenectomy performed for hæmolytic jaundice, and in one case of splenectomy for splenic anæmia. Twenty-five cases of anæmia of varying types were subjected to a similar investigation. It was found that after splenectomy an increase occurred in the cholesterol blood plasma content, whereas the excessive fragility of the red cells persisted in cases of hæmolytic jaundice. The relationship of the hypercholesterolæmia to the cessation of splenic function is undetermined. In the anæmias a slight degree of hypocholesterolæmia was found.—Quinidine in the Treatment of Auricular Fibrillation, by Archibald E. Clark-Kennedy. This contribution is based upon the results obtained by treating 45 unselected cases of auricular fibrillation with quinidine sulphate. In 82 per cent. a normal cardiac rhythm was restored. A preliminary course of treatment with digitalis was invariably given, and when no further improvement could be obtained with this drug quinidine was substituted. The usual dose was 5 gr. six hourly for 12 doses, the amount being gradually increased until "severe toxic symptoms or signs and symptoms of heart failure were observed." The simultaneous administration of digitalis and quinidine is not recommended. One fatality due to the quinidine occurred, in this instance there was no embolus, but the drug presumably had a toxic effect upon the myocardium. The rheumatic cases were most favourably affected by the treatment.—Variations in the Threshold in Renal Glycosuria, by George Graham. In renal glycosuria sugar is always said to be present in the urine, and the level of blood-sugar before and after a carbohydrate meal falls within the normal limits of variation. The author describes here a new type of renal glycosuria in which sugar is not always present in the urine, but only occurs when carbohydrates are eaten. The blood-sugar curve, however, is normal. Four examples of this class are recorded, which are considered to form a link between normal individuals and those affected with typical renal glycosuria.—Observations with the Hæmatocrit Volume-colour Index, by George Rossdale. The hæmatocrit is an instrument for recording the red-cell volume of the blood. The results obtained with whole blood were more accurate than when citrated blood was used. The volume-colour index is obtained by dividing the hæmoglobin percentage by the hæmatocrit percentage; it is thought to be of more value than the colour index, in certain cases in which there is an alteration in the volume of the red cells.—Endocarditis Lenta, by H. J. Starling. The chronic variety of infective endocarditis is considered in this article. The clinical aspects are fully discussed: they are based upon observations made upon 30 soldiers under treatment in 1917–19, and upon 22 discharged soldiers admitted to hospital from 1919–22. The infection is thought to be a primary one of the endocardium, due to a streptococcus of low virulence. Two excellent plates of the post-mortem macroscopical appearances of the heart are included in the journal.

JOURNAL OF INDUSTRIAL HYGIENE. March and April, 1923.—The first article, which is the second report of the Commission on Resuscitation from Carbon Monoxide Asphyxia, is contributed by C. K. Drinker and W. B. Cannon. It deals with the present practice in resuscitation from poisoning by illuminating gas, and the eventual course of patients poisoned by carbon monoxide. The authors report that gas companies in America are providing means for resuscitation; the Schäfer method is most advocated. The lungmotor and pulmotor are used, but are not strongly recommended. Most of the serious cases are removed to hospital, where records show a death-rate of 14·5 per cent. of cases admitted. The patients have a high average pulse-rate, and in 27·8 per cent. undue moisture in the lungs. The Commission is undertaking a series of experiments on the problem and will offer recommendations later.—An article on Ventilation in English Factories and Workshops in Hot Weather is provided by T. C. Angus, who has worked with Dr. Leonard Hill. He advocates the use of jet tubes for causing air movements. A stream of air driven at high velocity is passed through a jet well over the heads of the workers; its force is sufficient to set in motion a great volume of air around its path. The results obtained are illustrated by diagrams which are based on tracing the movements by smoke clouds.—Messrs. F. P. Underhill and B. R. Harris discuss the Influence of Benzol upon Certain Aspects of Metabolism. From laboratory experiments upon animals they conclude that benzol acts not only on the blood elements, but exerts a katabolic influence on body tissues as a whole. This influence is manifested by a sharp rise in creatine and total nitrogen, within a very short period after subcutaneous injection.

In the April number the therapeutic use and toxicity of picric acid is dealt with by C. T. Pack. Picric acid, trinitrophenol, is distinctly less toxic than trinitrotoluene. Two cases of dermatitis following upon the application of picric acid for burns are described. The dermatitis is ascribed to the employment of alcohol as a solvent for picric acid, which causes increased absorption. The resulting dermatitis resembles that caused by trinitrotoluene.—R. Williamson reports investigations into the effect of aniline-black dyeing on factory workers. Three yarn-dyeing works were visited and the workers examined. Changes in the blood were carefully estimated and are given in detail. Aniline was found to be associated with anæmia, distinguished by a decrease in total hæmoglobin, a decrease in the number of red cells, a lower colour-index, but with little alteration in the leucocyte count or in the differential count.—J. S. Owens describes his Jet Dust Counting Apparatus, which is probably the best method for estimating atmospheric dust yet produced. In it a given sample of air is made to impinge suddenly upon a cover-slip. The device ensures that any particles in the air adhere to the cover-slip, which can then be examined under the microscope. The mechanism of the apparatus is clearly illustrated, and micro-photographs are given of results obtained by its use.

THE LANCET.

LONDON: SATURDAY, MAY 19, 1923.

THE MANAGEMENT OF PERITONITIS.

AT a recent meeting of the Hunterian Society, Mr. H. W. CARSON chose as a subject for the annual oration the evolution of the treatment of septic peritonitis. In this interesting survey, an abstract of which appears elsewhere (p. 1035), the slow advance of knowledge is strikingly shown. The painful emergence of truth from the realms of superstitious belief, hampered by authoritative pronouncements based upon faulty deductions from a too limited trial of newly advocated methods, provides a lesson which may well be taken to heart. That great master, DUPUYTREN, because of an unfortunate result in a single case, declared that the opening of localised abdominal abscesses should never be undertaken, and even SYME lacked the vision to perceive that he had evolved a general principle, and that results might be obtained in abdominal surgery as brilliant as those he was already getting in operations upon other regions of the body, by insistence on the most careful personal cleanliness. It was left for LAWSON TAIT to further the cause of abdominal surgery by establishing the first crude system of aseptic surgery. The operative treatment of peritonitis therefore had its beginning not quite fifty years ago, whilst all the important knowledge dates back for scarcely twenty years.

During this time certain problems have been solved, but others have remained subjects of controversy. The outstanding established facts are the great powers of resistance to infection of healthy peritoneum, the ability of this membrane to localise the disease when the source of infection has been timely removed, the existence of a critical point which corresponds with the absorption of a fatal dose of toxin, the tendency for the infection to travel upwards towards the diaphragm, where absorptive activity is greater than in any other region of the abdomen. The disputed point is really the measure of surgical activity which is indicated at different stages of the disease. All are agreed, however, that the chances of success are immeasurably greater when earlier treatment can be instituted. During the first few hours the only really essential thing is to remove the source of infection. Generally speaking, the earlier an inflamed appendix is removed or a perforation sutured, the greater the likelihood of a happy issue. But even here the surgeon can be too precipitate, for a patient whose perforated gastric ulcer was sutured within an hour of the catastrophe occurring has succumbed to the operative intensification of the extreme initial shock from which he was suffering, a condition of depression which usually passes off in two or three hours. A point which is much debated is the advisability or not of draining the peritoneal cavity after the primary source of infection has been dealt with. Very free drainage at one period was universally advocated, but we no longer see three or four tubes protruding from the abdomen of the convalescent patient. The most ardent advocate of drainage will scarcely ever insert more than one, and that into the lowest part of the cavity. But a large group of surgeons maintains that even this tube is unnecessary. This school relies solely upon the admittedly almost miraculous natural powers of defence. It is recognised by the advocates of the method that sometimes the process is limited but not eradicated, so that a pelvic abscess may require to be evacuated in one or two weeks' time, but they will not allow that after the removal of the infecting focus the likelihood of diffuse spread of the peritonitis is lessened by the insertion of a tube. The onus of the proof of this declaration should rest upon the advocates of the procedure, and until it is forthcoming the interests of the patient will probably be served better by retaining the drainage-tube, for the dissenters can point to cases where they believe life has been saved only by reopening the abdomen to allow of the exit of accumulating peritoneal exudate. Yet no one will deny that many abdomens may be sewn up with impunity in a way which would have been inconceivable some years ago. Irrigation of the cavity where the inflammatory process is diffuse has been given up by nearly all surgeons. It is impossible to remove the infective material by this means; on the contrary, irrigation forces this material into unattacked regions, prolongs the operation, and damages the peritoneal membrane. MURPHY'S advice to "get in quick and get out quicker," is based on a sound policy.

When the inflammatory process is nearing the critical stage or when it appears to be localising itself, the question must be settled whether any surgical intervention at all is right. One school of surgeons strongly advises against any operative measures being taken, for they believe that the opening up of healthy tissue-spaces, and the possible further dissemination of the infective material may just suffice to turn the scale against the patient. Every effort should be made to assist the victim in delimiting the inflammatory process. This object is best achieved by securing absolute rest for the alimentary canal by starvation and the administration of opium, whilst saline is given by the rectal path in as large a quantity as the patient will absorb. Rectal saline is universally recognised as a very valuable measure in combating peritoneal infection, but the administration of opium is regarded as dangerous by some surgeons who, on the contrary, give aperients in small repeated doses. They point out that if in peritonitis the bowels can be got to act, recovery usually follows. But a movement of the bowels is simply an expression of the removal of the inhibitory impulses going to the bowel wall and is in itself a sign of the subsidence of the pathological process. To give opium with the object of abolishing peristalsis is an attempt to ensure for the inflamed area that rest which HILTON emphasised so strongly as necessary. Nevertheless, the greatest care must be taken not to overdose with opium and so substitute one pathological state for another. Pituitary extract, because it is a motor excitant of the bowel, is contra-indicated. It is against the teaching of pathology. Whether operation be carried out or not, the sitting posture has proved itself undoubtedly a valuable adjunct in preventing the spread of peritonitis to the upper dangerous area of the abdomen, so that from the moment when the diagnosis of peritonitis is made the patient should be propped up in this position.

THE VACCINIA VIRUS.

IN all work upon vaccinia and the preparation of vaccine lymph the elimination of the calf has been an end towards which attention has been constantly fixed. Recent studies of the properties of the active

principle of lymph have given reason to hope that this achievement is within measurable distance of being accomplished. The possibility of the propagation of the virus through rabbits' brains has been brought into prominence by A. MARIE,[1] who found that the intracerebral inoculation of this substance causes, in these animals, a form of encephalitis which terminates fatally in four or five days and, further, that it is possible to carry on the passage of such a malady from brain to brain in series. According to MARIE such a new habitat causes an increase in the virulence of the active agent towards the central nervous system, accompanied by a loss of virulence for the skin; ultimately a vaccine was obtained which had lost the power of causing vaccinia, which originally characterised it, but which was very active in causing the characteristic vaccinial form of encephalitis. The subject has been recently taken up with great thoroughness by C. LEVADITI and S. NICOLAU,[2] who have confirmed and extended the previous observations upon the neurotropic affinities of vaccine virus; their results differ from those already quoted in that even after many cerebral passages, in which it acquires a high degree of virulence towards the central nervous system, the virus still retains its affinity for the skin.

Such a neuro-vaccine, as they call it, consisting of the emulsified brain-substance of rabbits which have succumbed to the cerebral malady after intracranial inoculation, is sterile in so far as ordinary bacteria are concerned, and is still capable of setting up vaccinia when inoculated into the skin of susceptible animals; it does, however, appear somewhat less potent in this respect than the ordinary vaccine which has been cultivated continuously upon the skin (dermo-vaccine). This result is especially seen in the fowl, where the additional interesting fact emerges that although no eruption of vaccine pustules is observed, yet the animal becomes refractory to a subsequent inoculation with the dermo-vaccine. The neuro-vaccine has been used with success upon the human subject, in whom it produces typical vaccinia; an advantage is claimed over the usual calf lymph in that the emulsified brain is entirely free from septic organisms. In further studying the properties of their neuro-vaccine the authors show its affinity for the cutaneous system. When the virus is injected intravenously in the rabbit, an abundant crop of cutaneous pustules occurs, which is especially localised in any region of the skin which has been previously irritated by shaving and pulling out the hairs. They also adduce evidence that the germ localises itself electively in such portions of the body as are developmentally allied to the skin, as being products of the ectoderm, thus bringing the condition within the group of the neurotropic dermatoses which LEVADITI has laboured to establish. His work in this direction we have noticed previously.[3] Thus, after intravenous injection, the virus can be detected in the skin, saliva, buccal mucous membrane, mammary glands, and brain; whilst showing little, if any, tendency to remain in mesodermal organs such as the blood, spleen, bone marrow, lymphatic glands, muscles, or kidneys. Previous injury seems to aid this localisation in organs for which the germ has a special affinity. This inter-relationship of the various structures of embryological fraternity is further emphasised by the fact that where the immunity of one of them is acquired by inoculation a refractory state is simultaneously engendered in the others; the production of a crop of vaccine pustules on the flank of an animal will render its brain resistant to direct inoculation with the virus.

Such immunity would appear to be a localised tissue immunity, since no trace of anti-bodies is to be found in the blood, whilst the brain, in such a case, has the property of destroying the virus when mixed with it. In view of the fact that the immunity in vaccinia is of limited duration, the authors put forward the thesis that this resistance is a property residing locally in the tissues in question, which is developed in them at the time of the original vaccination and which is transmitted from cell to cell, becoming gradually attenuated and worn out as the tissues are constantly renewed. Such an immunity would therefore tend to disappear most quickly from those tissues which reproduce most rapidly. This theory is supported by experimental evidence which is extremely ingenious and interesting, though not, in our view, conclusive.

[1] A. Marie: Comptes rendus de la Société de Biologie, 1920, lxxxv., 476.
[2] C. Levaditi and S. Nicolau: Annales de l'Institut Pasteur, 1923, xxxvii., 1.
[3] The Neurotropic Dermatoses, THE LANCET, 1922, i., 1106.

PSYCHO-PATHOLOGY IN THE CURRICULUM.

ANY proposal to add to the medical curriculum calls for special examination, and Sir GEORGE NEWMAN, in the Memorandum on which we commented in a recent issue, proposes additions which entail considerable encroachment upon the student's already well-filled table of subjects. Particularly in psychology and psycho-pathology does he call for instruction of a kind that has hitherto been almost entirely absent, and the schedule suggested by him—which appears elsewhere in this issue—is supported by his more detailed criticism of present deficiencies. Instruction in the psychoses has not kept pace with the progress of pathological, clinical, and therapeutic methods, and only a minority of the examining bodies include the subject in their examinations. The clinical side of the subject is generally taught in an asylum to which the student pays the visits necessary to procure the certificate of instruction demanded by his examining body; the patients he sees are already in a condition involving certification, and he is left without experience of the perplexing cases of early or doubtful insanity which will form some of his problems in general practice. The institution of the various diplomas in psychological medicine has led to the establishment of instructional courses such as those at Bethlem and the newly-opened Maudsley Hospital, so that post-graduate work on the subject is now available. In Birmingham, which already leads the way in the practical application of psycho-pathology to the study of the delinquent, a department of clinical psycho-pathology is now attached to the medical school of the University, and we may expect soon to see the subject included in the ordinary curriculum. From this example we may judge that the needs of the situation are already on the way to recognition.

Some of the scheduled proposals concerning the psychoses might be criticised on the ground that the practitioner is commonly relieved of the responsibility of treating patients when they have reached the stage of being certified, but the case of the psycho-neuroses is in strong contrast. There are few institutions which will receive, on what might be called "hospital terms," the sufferers from those psycho-neurotic

disorders which, as Sir GEORGE NEWMAN says, are responsible for much misery and invalidity. Nearly two and a half centuries ago SYDENHAM wrote, in his Epistolary Dissertation to Dr. Cole: "Of all chronic diseases hysteria—unless I err—is the commonest," and in this Memorandum almost the same view, though with an important addition, is expressed in modern terminology: "Pure psycho-neuroses, or bodily derangements coloured by a psycho-neurotic element, will provide the general practitioner of medicine with a very large proportion of his most difficult cases. Yet at present we teach the student nothing of the make-up of the normal mind; we give him no help in separating the false from the true in the wordy strife as to the nature, ætiology, and treatment of psycho-neuroses." This explicit and authoritative statement crystallises a body of opinion which has been steadily growing since the many thousands of cases of "war neuroses" revealed a defect in our medical training which necessitated the establishment by Government departments of centres—first at Maghull and later at Tooting—where men already qualified were taught the elements of psycho-pathology. The interest then roused has found a further field in the neurotic disorders of civil life, for experience has shown that the same mental processes are involved in what was erroneously called "shell-shock" and in the "nervous breakdowns" in times of peace. And, just as in time of war the maintenance of the health and efficiency of the soldier made imperative a training in this subject, so the chief medical officer of the Ministry of Health finds it imperative that for the maintenance of a high degree of mental health and capacity in the population the general practitioner should have received instruction in the ætiology, symptoms, diagnosis, treatment, and prognosis of the morbid mental states most commonly met in general practice.

Yet psycho-pathology remains a neglected child of medicine—it sometimes seems almost an illegitimate one, and unless an individual member of the teaching staff chances to take a live interest in the subject the student will leave hospital knowing not even the meaning of anxiety neurosis or obsessional state; these and other common disorders will remain, as before, unrecognised and untreated. Only one or two London hospitals provide systematic lectures, and little is heard of out-patient departments where students would be sure of receiving the necessary clinical instruction. On the other hand, the recent progress of both interest and knowledge in regard to the psycho-neuroses has been rapid; we may regard Sir GEORGE NEWMAN'S outspoken formulation of the position as in some degree an indication, even a result, of that progress, as well as an expression of the growing realisation of the clinical opportunities afforded by the psycho-pathological material to be found in our hospitals and in private practice.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION.—A further series of post-graduate lectures, open to members of the profession, will be given in the house of the Royal Society of Medicine, 1, Wimpole-street, London, W. 1, during the session. The opening lecture on Wednesday, May 30th, at 5.30 P.M., will be given by Mr. Ernest Clarke on Tips in Ophthalmology for the General Practitioner, and others will follow by Mr. R. A. Hendry, Mr. James Berry, Sir Sydney Russell-Wells, Sir Henry Gauvain, Mr. Harold Chapple, and Mr. H. S. Souttar. A course of eight practical lecture-demonstrations on Gastro-Intestinal Diseases of Children, &c., will be given by Sir William Bayliss, Dr. Bernard Myers, and Mr. E. T. C. Milligan at the Children's Clinic, Western General Dispensary, Cosway-street, London, N.W. 1, from June 11th to July 5th, inclusive, at 5 P.M. A complete syllabus of either course will be forwarded on application to the Secretary to the Fellowship of Medicine, 1, Wimpole-street, London, W. 1.

Annotations.

"Ne quid nimis."

YOUTH AND THE RACE.

ENCOURAGED by Dr. Addison, then Minister of Health, the National Council of Public Morals resolved in 1920 to investigate the problem of sex education in its relation to the care and training of adolescents. Dr. Addison was of opinion that parents generally had either shirked their duty to their children in this matter or were afraid to do it, while it was difficult for teachers to take their place. The National Council referred the consideration under six heads to a Commission of Inquiry, including such representative medical men and women as the late Sir G. S. Woodhead, Dr. Mary Scharlieb, the late Dr. J. W. Ballantyne, Dr. A. K. Chalmers, Dr. Eric Pritchard, and Dr. Charles Porter. The inquiry narrowed itself down to the development and education of young citizens for worthy parenthood, and even with this limited reference the volume of important and closely reasoned evidence is enough to fill a substantial book. Competent and authoritative witnesses representing psychology, education, and medicine, assisted the inquiry, and the report of the Commission is contained within the 26 opening pages of a volume,[1] the bulk of which contains the verbatim evidence. The Commission was soon satisfied by the evidence laid before it that instruction in regard to sex could not be shirked with due regard to the moral safety and welfare of youth, and that such instruction should be considered not as an irksome duty but as a privilege. Dr. Lyttelton put the age of 9 years as the time when boys should be perfectly able to understand the facts of maternity, and Miss Edith Cooper showed as the result of instructing thousands of mothers in Birmingham that the more precisely detailed teaching of later years should be prepared for in the infant schools. The Commission records its conviction that instruction in sex matters should be given whenever curiosity in regard to them appears or when there is any indication of the formation of bad habits. At the same time it recognised the serious mistake of isolating sex instruction from moral education generally and thereby giving undue emphasis to it. Chastity, the report wisely lays down, should be treated as only one element in the good life, and the child should not be led to take a greater interest in this than in any of the other functions of life. As is so often the case in the reports of commissions, the notes of reservation are instructive in showing the points on which interest specially centred. A group of five members regard it as urgently necessary for the State, through the Ministry of Education, to ensure that every boy and girl leaving school should receive definite biological and physiological instruction about the facts underlying sex and the sex relationships, the first step to attain this being to secure a supply of teachers equipped with the necessary knowledge. Another group of six members regard as desirable the prohibition of the sale of alcoholic liquors of whatever kind to young people under the age of 21, in order to diminish the risk of sexual excitement resulting from intoxication by beer. Dr. Chalmers registered his personal feeling that the report laid insufficient stress on the physiological inhibitions of infancy and childhood, which may so readily become a pathway to the exercise of reasoned choice in later life. To him the basis of education is laid when the intelligent mother teaches her infant to exercise little acts of self-control. The volume is worth having for these 26 opening pages in themselves, but its chief value resides in the store of wise experience contained in the minutes of evidence,

[1] Youth and the Race. The Development and Education of Young Citizens for Worthy Parenthood (being the fourth report of, and the chief evidence taken by the National Birth-rate Commission, 1920 to 1923). Sir James Marchant, K.B.E., LL.D., Secretary. London: Kegan, Paul, Trench, Trübner and Co. 1923 Pp. 378. 15s.

the Socratic method being singularly productive where those who questioned were as competent as those who were to answer the questions. The preface foreshadows the publication later on in the year of the results of a further scientific investigation into the educational value of the cinematograph, conducted by expert physiologists under the chairmanship of Prof. C. E. Spearman.

OCTO-CENTENARY OF ST. BARTHOLOMEW'S.

Wolmer, a cripple, who had sat for 30 years in St. Paul's Cathedral asking for alms, in 1123 was borne in a basket before the altar of St. Bartholomew's and there stretched out his limbs and walked out well. The late Sir Norman Moore, historian of St. Bartholomew's, who tells this story, adds that in the same year Rahere began his priorate, and founded the hospital upon a bed of gravel on the highest part of the open space of Smithfield—a site well and truly chosen. At the solemnity just 800 years later, which will open the celebrations at noon on Tuesday, June 5th, there will be a representation of the episode of Rahere returning from his pilgrimage to Rome and meeting Richard Belmeis, Bishop of London, through whose instrumentality Henry, King of the English, granted land upon which the hospital was built. The second episode will record the presentation, by King Henry VIII. on June 23rd, 1544, of a charter to the Lord Mayor and Commonalty of the citizens of London, restoring to the hospital the lands alienated on the dissolution of the monasteries. The provisional programme of celebrations which has now been issued gives the events which will occupy the remainder of the week. On Tuesday the Lord Mayor will entertain the delegates to luncheon at the Mansion House, and at 3 o'clock that afternoon they will present addresses to the Prince of Wales, as President of the Hospital, at the Guildhall. Bartholomew Fair will be opened at 1 P.M. on Wednesday by the Lord Mayor, and on that and the following afternoon tableaux by the Royal Academicians, Mr. Charles Ricketts, Mr. Charles Sims, Mr. S. T. Solomon, and Mr. George Harcourt, with music arranged by Sir Alexander Mackenzie, illustrative of events in the history of the hospital, will be shown in the Great Hall. On Wednesday afternoon there will be a reception at the Royal College of Surgeons, and old students will dine together at Merchant Taylors' Hall at 7 P.M. On Thursday evening a conversazione will be held in the hospital and medical college. On Saturday afternoon a cricket match, Past *v.* Present, will be played on the hospital ground at Winchmore Hill, and the League of St. Bartholomew's Nurses will be At Home to delegates. An exhibition of historical and scientific interest is to be held during the week within the hospital precincts.

THE VOLUME OF THE HEART BEAT IN MAN.

THE volume of blood put out by the heart at each beat is one of the most fundamental quantities in physiology, and among the most difficult to measure. The ancients speculated brightly with imaginary premises; when they found that their calculations from the quantity of blood in the body and the rate of the heart beat led them to the conclusion that the whole blood must go round the body several times a day they were frightened at their extravagance and compromised with the suggestion that it probably really went round twice in sympathy with the ebb and flow of the tides.[1] We realise now that blood pours along the aorta at a rate which few bath taps could equal, though we are still far from understanding the variations of rate and its smaller niceties as we should like to. The chief difficulty is that the available methods are indirect and become less and less satisfactory as the experience and skill of the subject diminish; the crucial determination is the measurement of the amount of oxygen in the mixed venous blood in the right side of the heart, and no one has yet had the courage to show that this can be done by direct puncture with a needle and syringe. The main problem at present outstanding is whether the output is relatively constant or highly variable under ordinary conditions of life, and Prof. Yandell Henderson gives an illuminating discussion of the question in *Physiological Reviews*.[2] The argument that the output of the heart varies considerably has generally been somewhat as follows. In violent exercise the consumption of oxygen may increase to ten times the resting level; the pulse-rate rarely increases more than twice. Hence, during exercise either much more of the oxygen in the arterial blood must be consumed before it returns to the veins, or the heart at each beat must put out a good deal more than the resting volume of blood. It has been assumed that about one-third of the oxygen is used up in the tissues during rest, and if this proportion were doubled during exercise we could account only for a six-fold, as against a ten- or twelve-fold, increase in oxygen consumption during violent exercise, unless we allow that the heart's output at each beat is also about doubled. Henderson points out that recent knowledge is on the whole against this view, and urges that the "stroke volume" in a normal man is, within 20 or 30 per cent., a uniform quantity during all the activities of life. The mistake appears to have been that the difference in oxygen content between arterial and venous blood during rest has been exaggerated; the consumption is less than one-third and hence the resting circulation-rate is higher than has been supposed, and there is a large margin of oxygen consumption to be drawn on. An increase of two to three times in the pulse-rate and three or four times in the proportion of oxygen used will give the tenfold augmentation in the respiratory metabolism which is required during violent exertion. Thus in the beautiful experiments of Douglas and Haldane,[3] Douglas at rest consumed 233 c.cm. oxygen per minute, and while doing violent work on the ergometer 1974 c.cm., an increase of 8·5 times; his pulse-rate rose from 53 to 137 (2·6 times), the percentage utilisation of his arterial oxygen from 19 to 64 (3·4 times), the minute blood flow from 7·5 to 18·7 litres (2·5 times), while the output of the heart at each beat remained constant at 135–136 c.cm. The important practical conclusion emerges from this that the circulation-rate is pretty nearly proportional to the pulse-rate in the changes due to rest and exercise. It remains to discover how far this holds in disease; whether, for example, the increased pulse-rate in fever means an increase in circulation-rate.

MEDICAL WOMEN'S FEDERATION: FIRST PUBLIC DINNER.

THE annual meeting of the Medical Women's Federation concluded this year with a highly successful dinner, to which a number of important guests were invited. Members of the Federation from all parts of England and Scotland sat down with their friends to the number of about 220. Lady Barrett, who presided with great geniality, stated that the membership of the Federation now amounted to about 800 and that it was affiliated to an International Federation, on which medical women of 19 countries were represented. The Earl of Onslow, who proposed "The Medical Profession," alluded to the opportunities for service now open to women, particularly in the sphere of the early treatment and prevention of mental disease. Sir William Hale-White, in response, spoke feelingly of the rewards of faithful medical work which were not generally of a material kind. Sir Sydney Russell-Wells, M.P., proposed "The Federation," reminding his hearers of the pioneer position of London University in the education of women, and of his experience that to be successful was to make the best use of disabilities; anyone could utilise opportunities. He spoke of the likelihood of the struggle for existence shortly becoming acute among medical women. Miss Ivens, in respond-

[1] Ars Anatomica, by William Salmond, 1714, p. 495.

[2] Physiological Reviews, 1923, iii., 165.
[3] Journal of Physiology, 1922, lvi., 83.

ing, set out the main purpose of the Federation as to raise the standard of work among medical women and to promote active friendship among them, especially for the support of those in isolated places. Dr. Jane Walker proposed "The Guests" in anecdotal vein. Mrs. Wintringham, M.P., and Sir George Berry, M.P., responded. Mr. H. J. Waring proposed "The Chairman," suggesting to the Federation the appointment of an advisory body to weed out unsuitable entrants at the outset of their career. Lady Barrett, in responding, laughingly disclaimed on behalf of medical women the sagacity to foresee the successful practitioner in the girl leaving school. She and other women speakers refused to be pessimistic in regard to the outlook for the woman practitioner or her ability to earn her own living.

GONORRHŒA, EPIDIDYMITIS, AND STERILITY.

THE treatment of gonorrhœa and its complications in the educated man may be one of the most subtle problems that can confront a practitioner, and happy is one who can point to a series of cases where no permanent damage, physical or psychical, has been sustained. The widely disseminated knowledge of the ætiology and possible end-results of gonorrhœa, though it may be, and probably is, to the interests of the community as a whole, may complicate the position of the individual sufferer without bringing him much compensatory advantage. For though much is known in a general way, it is mostly impossible in the early stages even for an expert to inform a patient exactly where he is likely to stand as regards the two great horrors which may fill his mind with apprehension—infectivity and sterility. Of these it is easier to prophesy hopefully as regards the former. The practitioner may nowadays with a fair degree of safety assure the patient that under careful treatment he will eventually be non-infective. The second remains a more doubtful proposition and depends largely on the success with which complications are avoided. The danger of sterility following an attack of gonorrhœa is, perhaps happily, less well known among patients, who do not realise that gonorrhœal epididymitis is the commonest of all sources of sterility in the male. The figures published [1] by Benzler in 1898 are instructive. This observer followed the record of German soldiers with a previous history of gonorrhœa who had been married for three years or over, special attention being directed to a history of epididymitis. Of those who had escaped epididymitis, 10·5 per cent. were childless, of those who had had unilateral epididymitis 23·4 per cent. were childless, of those who had had bilateral epididymitis 41·7 per cent. were childless. It is clear that a great number of childless marriages must be due to a previous attack of gonorrhœa in the husband, and particularly to an attack complicated by epididymitis.

On page 1020 of our present issue Mr. Kenneth Walker sets out the main points of importance in treatment if inflammation of the epididymis, or at least such extensive fibrosis of its minute channels as may lead to sterility, is to be avoided. Physical problems, however, are less difficult to tackle than the psychology of the patient at the time of onset of the disease, at the time of the complicating factor of epididymitis, and at any future time when he may desire to marry. It is at these crucial moments, when the patient is suffering from the misery of self-reproach, that the practitioner may be called upon for information or reassurance, neither of which he is in a position to give without reserve. Here a word of warning may be in place. Many patients do not realise that the rigorous so-called "marriage tests" insisted on by careful surgeons are tests for infectivity only. It is unwise, however, to leave it at that and to allow them to marry, especially if they have had bilateral or even unilateral epididymitis, without a hint that they are less likely to be fertile than the normal man. The results of well-meant reticence on this point may be unhappiness or even recrimination if the wife is subsequently examined and the probable cause of sterile marriage is traced to the unconscious husband. On the other hand, the practitioner who knows the temperament of his patient may fear to produce morbid questionings which may wreck two lives without due cause. In hospital practice it may be impracticable to do more than answer definite inquiries, but in private practice the suggestion of a fertility test would give opportunity for a discussion of the situation, even should no final verdict be reached. The best time to bring up the subject will hardly be the last of the three stages of anxiety to which allusion has been made. Rather let the first stage be chosen when, in the presence of personal physical discomfort and the possibility of infectivity, the menace of ultimate sterility seems, as indeed it is, remote. A warning uttered then could hardly further depress the spirit of one afflicted, and might help to ensure that rest in the early stages which Mr. Walker, in common with other authorities, regards as one of the most important factors in the prevention of complications which may lead to sterility.

[1] Arch. f. Derm. u. Syph., xiv.

EXPERIMENTAL CHOLECYSTITIS.

NEARLY 100 years separate us from the time when Louis first demonstrated the association of typhoid fever with lesions in the gall-bladder, but it was only in the "eighties" of the last century that experimental work on animals began to show us the true importance of such associations. These and subsequent researches are admirably summarised in a long essay [1] by M. G. Peterman, of the Washington University School of Medicine. In the same paper he gives an account of his own work, which confirms previous experiments and throws into strong relief certain important aspects of the problem of gall-bladder infections. His experiments may be briefly summarised as follows:—

1. Injections of cultures of *Staphylococcus albus* into the portal circulation of rabbits led to the appearance of the organisms both in the heart-blood and in the bile within three minutes of the injection.

2. The same result followed injection of the organisms into the veins of the ear; but if the cystic duct and neighbouring vessels were tied the results were negative. If, however, the cystic ligature was performed ten days before the injection the results were positive.

3. In another series of animals virulent organisms were injected into the ear veins. Seven or more days later four of the seven animals (rabbits) were found to have the organisms present in the bile and the remainder had an acute cholecystitis, although in none of them did the heart-blood now yield organisms.

4. A series of seven dogs were injected with cultures of *Staphylococcus aureus* into the portal vein, three of them were given a second injection, this time of *Streptococcus hæmolyticus*, two to six days later. In all these animals the autopsy revealed cholecystitis affecting the wall of the gall-bladder and leaving the mucosa almost intact.

5. In the above animals an acute hepatitis was demonstrable in addition to the cholecystitis, and in four of them there was an interstitial pancreatitis as well.

6. In a series of rabbits a hæmolytic streptococcus was recovered from the wall of the gall-bladder a few hours after injection of the organisms into the portal vein, and the same result followed injection of the organisms into the appendicular vein. In all such cases the liver and pancreas were also affected.

7. In one rabbit in which the organisms were injected into the walls of the appendix similar results were found.

Discussing these results Peterman lays stress on the lymphatic route of infection both in the production of cholecystitis and of its complications, hepatitis and pancreatitis, and argues that in cases of gall-bladder infections secondary to lesions in the bowel and portal system the organisms travel first to the liver and produce a hepatitis to which the cholecystitis is secondary. If this be the case it seems probable that the path from the liver to gall-bladder is via the lymphatics. He also calls attention to the relatively small degree of damage to the mucosa, as compared

[1] M. G. Peterman: Surgery, Gynecology, and Obstetrics, 1923, p. 522.

with the other layers of the wall of the gall-bladder in cases where that organ has been removed for inflammatory disease in human subjects, and finds in this confirmation of his view that such cases are examples of infection via the lymphatics from the liver. We notice that in this essay the author attaches considerable importance to the work of Rosenow who claims [2] to be able to produce specific lesions in rabbits—appendicitis, cholecystitis, gastric ulcer—by injection of streptococci recovered from abscessed teeth, or similar lesions in human subjects with such diseases. It is perhaps significant that this dramatic work, which was published in 1915, has as yet received no sufficient confirmation, and it is but fair to point out that without some such confirmation of the origin of such infections we remain very much in the dark as to the true nature of the pathology of cholecystitis and its complications.

PITUITARY SECRETION.

IN a contribution to the current number of the *Journal of Physiology*, Prof. W. E. Dixon deals with the conditions which cause secretion of the pituitary gland to meet the needs of the animal economy. Anæsthetised dogs were used; tracheotomy was performed, the blood pressure recorded, and all injections were made into the right femoral vein. The cerebro-spinal fluid was collected from the subcerebellar cisterna. The normal cerebro-spinal fluid showed every known chemical and physiological action of pituitrin, although the amount of this substance in the fluid varies greatly. A very large number of negative experiments was obtained; no form of stimulation of sensory nerves or of vagus and sympathetic in the neck caused any change in the secretion of the pituitary, and the inhalation of oxygen and carbon dioxide was likewise without effect. Certain drugs—e.g., alcohol, chloroform, urea, caffeine, histamine, adrenalin, several alkaloids, and glucose were injected or given by inhalation, all with negative results. Preparations of the posterior lobe of the pituitary injected into the general circulation caused pituitrin to appear immediately in the cerebro-spinal fluid. What purpose the pituitrin serves in the cerebro-spinal fluid is not clear, but any excess rapidly disappears. An excess in the blood is absorbed by the gland and some of it reaches the cerebro-spinal fluid; an excess in the cerebro-spinal fluid is excreted rapidly into the blood. The pituitary gland secretes into the cerebro-spinal fluid; pituitary extract injected into the circulation causes the gland to secrete, and when it is injected into the cerebro-spinal fluid it rapidly causes the ordinary systemic effects by passing into the general circulation. A balance is struck between the amount in the blood and the cerebro-spinal fluid. Many animal extracts were tried, and it was found that ovarian extract specifically excites the gland to secrete. The effect is immediate and lasts only two or three minutes. The active substance is not in the corpus luteum. Duodenal extract causes a secretion after one hour, but neither so much nor so constant as that caused by ovarian extract; the effect, however, is more prolonged. Some ingenious suggestions, hinging round the fact that the pituitary is a remnant of a gland once secreting into the alimentary canal, are made, so that it is perhaps not extraordinary that its secretion should be associated in some way with the functions of the alimentary canal. Pituitary extract increases tone in the small intestine, and diminishes tone in the large intestine.

THE LIBRARY OF THE COLLEGE OF PHYSICIANS OF PHILADELPHIA.

THE libraries of the New World continue to flourish, and the Library of the College of Physicians of Philadelphia ranks among the most prosperous. The total number of volumes in this great collection now numbers 136,489. During 1922, 6430 volumes were received, in addition to 10,418 pamphlets and 16,016 numbers of various periodicals. Donors in 1922 numbered 412, who between them have made 955 distinct presentations. The library is especially famous for its incunabula, of which it possesses 316 volumes. A score of works, some wellnigh priceless, have now been added, and these include the very early "Zophilogium" of Jacques Le Grand, printed by Rysch at Argentoratum (Strasburg) in about the year 1470. This is the editio princeps of the once famous work, which Caxton translated into English under the title "A Book of Good Manners." Other very early books are the "Expositio Librorum Naturalium" of Aristotle, printed by Valdarfer of Ratisbon at Milan, 1476, and "Quaestiones de Tribus Principiis Rerum Naturalium" by Antonius Andreas, printed at about the same date by Canozius at Padua. The gem of these additions to an already unique collection is perhaps the "Contra Pestem" of Johannes Mercurius, printed at Rome by Johannes Besicken in 1493. The book is not mentioned by Hain, and is pronounced by Mr. Voynich to be the only known copy. It is not, however, the earliest treatise on the Plague, for Stainhöwel, of Ulm, had already in 1480 published "Von der Pestilenz" ("Regimen Pestilentiae"), although the latter fact does not seem to have been known to his translator, C. Ehrle, who described his manuscript in 1880. Other specifically medical works are the "De Plinii et Aliorum in Medicina Erroribus," of date 1492 (Ferrara), by Nicholaus Leonicenus, and Maimonides' "De Regimine Sanitatis ad Soldanum Babylonie," published at the Monastery of St. James de Ripoli in Florence in 1477. The works we have mentioned have been purchased by the "Fund for Rare Books" and the Funds of William F. Norris and Horace Magee. These agreeable resources are a feature of the Philadelphia Library for which English librarians can only envy their learned colleague, Mr. Charles Perry Fisher. To the Fund for Rare Books is also due the acquisition of a number of specially interesting sixteenth and seventeenth century works, including editions of David Abercromby, Abraham Aben Ezra, Henricus Cornelius Agrippa, Albertus Magnus, Valerius Cordus, Descartes, Raymund Lully, Simon Portius, to name only a few authors among many.

AN INDICTMENT OF THE PANEL SYSTEM.

THE panel system has been brought into the limelight by the criticism of the coroner for North-East London at a recent inquest. The conduct of the practitioner concerned will be a matter for further inquiry, but it appears to be necessary to remind the public that the conditions of medical practice so severely condemned by the coroner were in existence long before the panel system was established. In the *Daily News* there was recently published a very interesting article on "The Back-Street Practice," by Dr. F. G. Layton, in which a true picture is drawn of the state of things which formerly prevailed. "The club doctor was willing to work for a capitation fee so low that only numbers, extraordinary numbers, of capitation fees made it worth while. He had so many names on his list that he could deal with little, if any, of his work properly. In those days strangulated hernias were poulticed until they sloughed; appendicitis patients perforated and died . . ." Readers of THE LANCET may recall the investigations which resulted in the publication of the "Battle of the Clubs." If the poor man's doctor was overworked in those days, he is more heavily burdened to-day, when the poor industrial centres are in question, because the provision of medical benefit brings to his surgery insured persons who hitherto had recourse to the out-patient departments of our large hospitals, or who were treated under the Poor-law.

How is this state of things to be remedied? Some provision must be made for the great mass of illness which occurs in the overcrowded industrial neighbourhoods. The panel system has presented the best solution of the difficulty up to the present. The statement attributed to the coroner for North-East

[2] E. C. Rosenow: Collected Papers of Mayo Clinic, 1915, p. 276.

London, that "the panel system is a retrograde step, not too strongly described as a disastrous blunder and a miserable failure," is more than exaggerated. "Replace the present system," he says, "by one under which the doctor is paid for the actual work done, and the patient is free from restrictions both in choosing and in changing his medical attendant." But this proposal does not touch the root of the evil. The problem is one of adequate provision for the amount of work which requires to be done. Mere change in the method of payment cannot provide better attention and treatment when it is admitted that the number of practitioners in poor neighbourhoods is too small so that each has too many people to attend to. How can the frequent transfer of patient from practitioner to practitioner reduce the volume of work or make the work any easier? Payment on the basis of attendance is not likely to attract more doctors to these overcrowded areas. There are but 24 hours in the day, and it might be well if some of the critics of the panel system could experience the burden of the day's work of a busy panel practitioner. There is a limit to the time which can be devoted to consultations, not only because of the limits of physical endurance, but because the time devoted to visiting must not be curtailed.

The remedy which could be immediately applied would be a substantial increase in the number of practitioners in these areas. But well-qualified men will not be attracted to industrial areas if the remuneration is reduced.

STERILISATION OF TYPHOID CARRIERS BY REMOVAL OF THE GALL-BLADDER.

THE problem of the typhoid carrier in the general population is difficult enough in all conscience, and in asylums for the insane it is even more knotty for obvious reasons. The sane carrier can, in some cases, be persuaded to take certain elementary precautions which the insane cannot be expected to observe, and, as every asylum physician knows, it is often difficult to detect typhoid fever at an early stage in the insane. These, and kindred difficulties, are discussed in two papers published by Dr. A. Hottinger and Prof. C. Arnd (the latter since deceased, see THE LANCET, March 31st, p. 673) respectively in the *Schweizerische medizinische Wochenschrift* for April 26th. The asylum to which they refer has been unable for the past 20 years to stamp out an endemic of typhoid and paratyphoid fever, the staff as well as the patients falling ill from time to time. Various prophylactic precautions were taken, but new cases continued to crop up, doubtless because it was impossible effectively to isolate all the carriers. Accordingly, an attempt was made to sterilise 15 of these carriers by cholecystectomy, the whole of the gall-bladder being removed. In eight of ten persons who were typhoid carriers no typhoid bacilli could be found after the operation, but as far as the paratyphoid carriers were concerned, the operation proved to be futile. In two cases cholecystectomy in typhoid carriers was followed by the disappearance of typhoid bacilli from the stools, which then, however, were found to harbour paratyphoid bacilli. A somewhat disconcerting observation was made in the case of four typhoid carriers whose gall-bladders proved to be completely sterile; three of the five paratyphoid carriers were also robbed of perfectly sterile gall-bladders. At first sight it would seem that the operation in all these seven cases was ill-advised and useless. Perhaps it was. And perhaps the disappearance of typhoid bacilli from the stools in some of these cases immediately after the operation was a coincidence; the patients might have ceased to be carriers spontaneously and without the discomforts and dangers of an operation. There is, however, the possibility that the attendant incidents of the operation—ether anæsthesia and a restricted dietary for four to five days—may have played a part. Be this as it may, the prospects of sterilising paratyphoid carriers seem to be meagre on this showing, and even in the case of typhoid carriers cholecystectomy has a very uncertain action. It has recently been pointed out by Dr. Murstad, of Bergen, that cholecystectomy is of personal advantage to the carrier of typhoid bacilli as well as to his potential victims, because the gall-bladders of carriers often harbour calculi as well as typhoid bacilli. But among the 15 patients treated by Dr. Hottinger and Prof. Arnd there were only eight in whose gall-bladders calculi were found.

THE YALE SCHOOL OF NURSING.

THE tenth anniversary on May 14th of the granting of a charter to the Rockefeller Foundation was the occasion of a statement by the secretary of the total sums disbursed during ten years. Public health has benefited to the extent of 18 million dollars; medical education to the extent of nearly 25 million. The most recent gift of the Foundation has been to endow a School of Nursing to be founded in the University of Yale. This Foundation is the outcome of the increasing recognition by leaders of public health work in America of the importance of the public health nurse. The school will not, however, be limited to training for this field, but will provide instruction in every branch of nursing. Unnecessary drudgery is to be no part of the student nurse's curriculum. The length of the course, the periods to be allotted to theory and practice, and the question of a degree in nursing still remain to be settled. The novelty of the scheme necessitates cautious development, but it may safely be assumed that the school will play an important part in the future of nursing. The first director of this school has been appointed. She is Miss Annie W. Goodrich, now assistant professor of nursing at Teachers' College, Columbia University, and for the last seven years director of nursing at the Henry Street Settlement.

DECAY IN STONE.

UNTIL Pasteur showed that decay was the result of bacterial infection it was generally supposed that foodstuffs, and indeed organic matter in general, underwent a natural and inevitable process of dissolution. In the same way the view has too long been held that decay in building stones is a natural process, and that the only way of preserving historic buildings and ancient monuments is to replace with new material as occasion arises the parts which have disappeared. It has now been decided to set up under the Department of Scientific and Industrial Research a special committee of the Building Research Board to report on the best methods by which such decay may be prevented or arrested. It is presumed that the investigation is likely to be complex, and in order to approach it from different angles with the help of wide scientific knowledge three Fellows of the Royal Society have been appointed members of the committee which will be presided over by Sir Aston Webb. Communications may be addressed to the Secretary of the Department at 16, Old Queen-street, London, S.W. 1.

THE next session of the General Medical Council will begin on Tuesday, May 29th, at 2 P.M., when a report will be made by Sir Donald MacAlister on the work of the Council since the November session, and penal and other matters will be considered.

THE twelfth Biennial Huxley Lecture on Recent Advances in Science and their bearing on Medicine and Surgery will be given at the Charing Cross Hospital Medical School by Sir Arthur Keith, at 3 P.M., on Wednesday, June 27th, when the chair will be taken by Dr. William Hunter. Admission to the lecture free without ticket.

MEDICAL OFFICERS OF SCHOOLS ASSOCIATION.—A meeting will be held at 11, Chandos-street, Cavendish-square, London, W. 1, on Tuesday, May 29th, at 5 P.M., when Dr. Alice E. Sanderson Clow will read a paper on the Effect of Physical Exercise on Menstruation.

Modern Technique in Treatment.

A Series of Special Articles, contributed by invitation, on the Treatment of Medical and Surgical Conditions.

XX.

TREATMENT OF GONOCOCCAL EPIDIDYMITIS AND ITS BEARING ON STERILITY.

SINCE it is mainly on account of the complications to which it may give rise that gonorrhœa is such a serious disease its successful treatment lies in the avoidance of complications and especially of such complications as prostatitis and its sequelæ. Unfortunately, it is not in the power of the medical man to safeguard his patient from all the dangers to which his attack of gonorrhœa has exposed him. The factors that determine the spread of infection from the anterior to the posterior urethra are no more within his control than are those that determine the spread of a pharyngeal infection to the larynx within the control of a laryngologist. Nevertheless, by judicious treatment he can, at least, minimise the chances of epididymitis with its attendant risks of sterility.

Preventive Treatment.

The most important of all the measures directed to this end in a case of acute gonorrhœa is undoubtedly *rest*. Were it possible to do so I would confine to bed every patient of mine who was suffering from acute gonorrhœa, and would keep him there until the acute stage of the disease were over. By such means alone the number of those who subsequently developed epididymitis would certainly be halved. If complete rest is impossible owing to the circumstances of the patient his doctor must, at any rate, insist on the avoidance of all unnecessary exertion for the first three weeks or so of the attack, and must strictly limit the amount of exercise allowed during the whole of the time that the patient is undergoing treatment. Many an attack of epididymitis occurring at a later stage in the disease has followed an injudicious bicycle ride embarked on when the patient has been under the impression that he was cured and able to do what he liked.

The second point of paramount importance in the prevention of epididymitis is the avoidance of all trauma to the testis. In my opinion gonococci are in a large percentage of cases present in the tissues of the testicle even although signs of active inflammation are absent. It wants but the additional factor of bruising and lowering of tissue resistance to precipitate an acute inflammation, and since few structures in the body are more exposed to continual trauma than those in the scrotum every patient suffering from acute gonorrhœa should be provided with a suspensory bandage designed to keep the testicles well braced up and, as far as possible, out of harm's way. The adoption of such a precaution should be immediate and not undertaken merely when the patient complains of aching in the testicle, and it should be regarded not as a curative but as a preventive measure.

The third factor of importance is the avoidance of irritation of the posterior urethra. Whether the infection of the epididymis be due to the spread of organisms down the lumen of the vas, as is generally believed, or whether it be due to their spread along the surrounding lymphatics, as I have attempted to prove,[1] it is, at any rate, certain that irritation of the posterior urethra is generally the exciting cause of the attack. The mucous membrane of the posterior urethra is one of the most sensitive and easily damaged lining membranes in the body, and must be treated with immense respect, especially when it is in a state of inflammation. Hence the necessity for excessive caution in the technique with which irrigation is carried out.

[1] THE LANCET, 1913, i., 435.

Precautions in Irrigation.

High irrigators and strong lotions were together productive of thousands of cases of epididymitis during the war, and even at the present time certain clinics produce an unnecessarily large crop of epididymitis cases as a result of unskilful irrigation. The question as to whether posterior irrigation should be carried out at all in the earlier stages of gonorrhœa is one on which experts differ. A widespread fear exists in the minds of the public and the profession alike that posterior irrigation may carry infection back from an infected to an uninfected area, and thus help the spread of the disease. This danger is, however, theoretical and more apparent than real. The answer as to whether it is wise to proscribe posterior irrigation from the start is one that can only be supplied by a careful comparison of clinical results. Are complications commoner when posterior irrigation is used as a routine, even in cases that clinically give no indication of an infection of the posterior urethra? Personally, as the result of observations at my clinic at St. Bartholomew's Hospital and elsewhere, I believe they are, and for this reason I recommend that when treating an acute or subacute urethritis, which clinically at any rate appears to be confined to the anterior urethra, anterior irrigation alone should be carried out.

Before leaving this subject it is advisable to utter a word of warning against the employment of two methods of treatment—the syringe and the medicated bougie. Both are highly productive of epididymitis and have the additional quality of being inefficient. It is almost impossible for a patient when injecting himself with a syringe to regulate the pressure at which the fluid is introduced, for it is very seldom that the piston runs with uniform smoothness in the barrel. Of medicated bougies little need be said, except that most of us have at one time employed them and have quickly abandoned them. Additional exciting causes of epididymitis are the passage of instruments during the acute stage of the disease, and over-vigorous or premature massage of the prostate, both of which may be grouped under the aforementioned heading of irritation of the posterior urethra.

The Relief of Pain.

The treatment of epididymitis, once it has occurred, consists of measures directed to the relief of pain and to the hastening of resolution. The pain is sometimes intense and may call for somewhat drastic methods of treatment. It is due to intense congestion and œdema of the testicle and to the fact that the tunica albuginea only allows a certain amount of expansion. For such cases the rational treatment is puncture of the congested epididymis. This may be done by means of a hypodermic needle and syringe, the syringe being used to draw off as much serum and blood as possible. More drastic proceedings have been advocated, such as puncture with a fine tenotome or even open incision. These methods would certainly appear to involve the risk of inflicting permanent damage on the epididymal canal, and thus be productive of future sterility. Fortunately they are rarely if ever required. If necessary the puncture may be combined with the use of a morphia suppository.

Various applications to the scrotum have been recommended from time to time—guaiacol ointment, belladonna, ichthyol, and various preparations of iodine. I am convinced that none of these is so effective as the application of heat. Heat may be applied as fomentations, hot baths, steaming, or best of all by means of diathermy. Without doubt the most satisfactory results at my own clinic have been obtained through the use of diathermy, but when this is not available the simpler remedies will be found not only to give relief but also to hasten resolution. During the attack of epididymitis all intra-urethral treatment must be postponed. When the attack has subsided it is as well to warn the patient that it will take a month or two for the swelling of

the epididymis to disappear entirely and that for a long time a small nodule will be found in the lower pole. When resolution is very tardy I have sometimes found the use of a large dose of vaccine and the provocation of a strong reaction to hasten matters.

KENNETH M. WALKER, F.R.C.S. Eng.,
Lecturer in Venereal Diseases, St. Bartholomew's Hospital: Surgeon in Charge of Genito-urinary Departments at the Royal Northern and Miller General Hospitals.

Special Articles.

DENTAL BOARD OF THE UNITED KINGDOM.

ADDRESS FROM THE CHAIR.

THE fourth session of the Dental Board of the United Kingdom was held on May 9th, 10th, and 11th at 44, Hallam-street, London, W., the Rt. Hon. F. D. Acland being in the chair. In his address, Mr. Acland referred to the fact that upon this occasion the Board met for the first time in its own Board Room, and spoke of the harmonious and useful work which he hoped would there be carried out. He expressed the gratitude of the Board to the General Medical Council for help given by lending their offices, and in every other possible way, and to Sir Almeric Fitzroy for conspicuous services rendered to the dental profession, in his capacity as clerk to the Privy Council, in the formation of the committee upon whose reports the Dentists Act of 1921 was founded, and in active membership of that committee. The Finance Committee, continued Mr. Acland, would submit to the Board an estimate of receipts and expenditure for the year ending Dec. 31st next. The estimated income of the Board for the year, about £45,000, would be sufficient to discharge its ordinary expenses, to pay the balance of about £13,000 not provided for in the previous year for building and equipment, and to leave about £20,000 available for research and education, of which approximately £3,000 had already been appropriated for grants and loans. The Finance Committee had estimated that £1500 would be required for legal expenses; the Board was now practically concluding one chapter of work entailing legal expense—that of registration—but another, connected with discipline, was now opening before it. Mr. Acland emphasised the fact that, to the exact extent to which it was necessary to take proceedings for the enforcement of a proper standard of conduct in the profession, money was subtracted from the funds available for the advancement of the profession through education and research.

Assistance of British Students.

Progress had been made, he continued, towards assistance of persons who were debarred from registration as dentists by being under the age of 23 at the date of the passing of the Dentists Act. At the request of the President of the General Medical Council some of the Licensing Bodies had agreed to accept them as students without requiring the usual standard of general education preceding their entrance upon professional study. The Board would be asked to approve the setting aside of a sum to assist with regard to fees, and in some cases maintenance, such of these persons as satisfy examiners appointed by the Board of their competence in mechanical dentistry, and show that they are unable to qualify without this assistance.

As, however, it did not yet appear very likely that suitable persons from this class would come forward up to the numbers which the Board could afford to assist, letters had been written to head masters and mistresses of a large number of secondary schools, informing them that the Board hoped to be in a position to assist students suitable for, but unable to take, the dental curriculum owing to want of means, and asking them to recommend names. Twenty recommendations had already been received. It would be a proud boast if in course of time the Board could say that no suitable student was debarred from entry to the profession by lack of means.

Lectures and Post-Registration Study.

Admirable courses of four lectures had been delivered, under arrangements made by the Board, in London, Edinburgh, and Manchester, on diseases of the periodontal tissues due to infection in their relation to toxæmia; these lectures were, he believed, very keenly appreciated by large audiences at every centre. He was sure that the Board would wish to receive proposals for future similar courses, and would desire to consider the development of post-registration study.

Grants to Ex-Service Students.

Grants had been made to ex-Service students, who would otherwise have been left stranded towards the end of their professional courses by the cessation of grants from the Government; these grants might involve a total payment of about £3500 out of this year's revenue. In not a few cases the persons assisted had already qualified, and several of them had written expressing their gratitude for timely assistance. The Education Grants Committee had begun on a small scale to make loans to students not in receipt of Government grants who found themselves unable for unforeseen reasons to complete their courses. The Committee would present to the Board an abstract showing the accommodation and facilities for training possessed by the dental schools, with an outline of their future needs, showing in general that extension and improvement of premises are both desirable and desired by the school authorities, and that, while space for extensions is available, funds are not. The Board would, in Mr. Acland's opinion, not be able at any very early date actively to assist development, but he hoped that before the end of the year they might be in a position to make offers of future help.

Research.

Progress would be reported as regards research, both on its medical and on its scientific side. The Board would be able to consider a definite scheme of research in which they were asked by the Medical Research Council to coöperate. The Department of Scientific and Industrial Research had welcomed the possibility of help as warmly as the Medical Research Council. The Board was represented on a provisional committee set up by the Department, whose task was to inquire how the problems which it was desired to examine could best be fitted into work already under investigation, and to make recommendations for carrying the work forward.

Discipline.

The Discipline Committee had given much consideration to problems arising in the interpretation of the Board's Warning Notice. Many inquiries had been received as to the circumstances under which it was to be allowable to insert a notice in a newspaper as to change of address or hours of attendance at a particular address, to use the words "dental surgery," and to use illuminated signs. Without committing the Board on the subject, the Committee had given provisional rulings on these points, which rulings, he suggested, should be considered by the Board during its session, and if approved should be published for general information. He was very much impressed by the evident desire of the vast majority of those newly admitted to the Register to maintain honestly and honourably a standard of conduct which would accord with the Board's wishes; and the Board, he thought, owed it to them to give as clear a ruling as possible upon points which might be genuinely in doubt.

Coöperative Societies and Dental Treatment.

Negotiations had been proceeding between associations and societies of dentists on the one hand and representatives of the industrial coöperative move-

ment on the other, with regard to the conditions under which coöperative societies should arrange for their members and members of their families to receive dental treatment. These negotiations arose out of the proceedings at the meeting of the Board on Nov. 21st, 1922, which were followed by a conference between the parties at the offices of the British Dental Association. Only unimportant details remained for settlement, and complete agreement had been reached on the main principles of a scheme of working. A panel would be formed of all dentists willing to accept a certain scale of fees mutually agreed upon, thus avoiding the advertising of a particular dentist which had hitherto frequently occurred; and the dentist would receive the agreed scale of fees from the society without deduction, which would avoid other undesirable aspects previously occurring in certain cases. If, as Mr. Acland hoped, the Board's scrutiny of the agreement when presented revealed no undesirable features, only its administration would remain to be watched, in which direction he anticipated no difficulty, being convinced that the coöperators' representatives, like the dental bodies, would do their utmost to see the agreement speedily and loyally carried out. The Board might, however, have more difficulty in securing the elimination of undesirable elements in the arrangements between dentists and bodies of persons outside the coöperative movement.

Practice by Unregistered Persons.

In conclusion, Mr. Acland dealt with the proceedings which the Board has already taken to secure that dentistry shall not be practised by unregistered persons, and that it shall be practised by dentists in conformity with the Warning Notice. The Board's solicitor had up to Easter taken action in 132 cases of persons continuing wrongfully to practise after Nov. 30th last. The majority of these were persons registered last year who had not paid the retention fee for this year, or persons whose applications were found to be in order last year but had paid the fee neither for last year nor this. Several had pleaded illness as an excuse, but, as the Board's solicitor had pointed out, a man well enough to practise was well enough to sign a cheque. A minority of cases—22 in all—were of persons who had either never applied to be registered, or who in their applications had not satisfied the Board's requirements. The work of clearing up these cases had been proceeding satisfactorily. It had seemed necessary to take actual legal proceedings in only four cases as yet, and in all of them the prosecution was successful. He was glad to be able to bear witness to the valuable assistance rendered in these cases by the police.

Breaches of Warning Notice.

With regard to alleged breaches of the Board's Warning Notice, which it was necessary to remind certain writers in the dental press were not breaches of law and therefore could not be dealt with through the police, a vigorous and systematic taking up of cases properly reported had served in very many cases to secure immediate promises of amendment, which had been without doubt generally carried out. A residue of cases in which by direction of the Discipline Committee persons would be charged with infamous or disgraceful conduct in a professional respect, remained for the Board's consideration. The experience so far gained, Mr. Acland stated, had shown that the Board was not unwise in requiring a complainant in certain cases to set out the facts of the case in a statutory declaration. The Board did not necessarily want the complainant to conduct the case before it, but he must show that there were genuine grounds for inquiry, this being a necessary guarantee that the complaint was bona fide and not vexatious. The Board must ask for some slight element of coöperation from the profession, and he could not imagine that any one affording it would, as had been suggested, be placed in an invidious position to the prejudice of his social and professional status.

DISCIPLINARY AND OTHER MATTERS.

At the conclusion of the Chairman's address the Registrar reported the restoration to the Dental Register of the names of Emile H. Chapman, Richard K. Devonshire, Wm. E. Ganney, and Wm. H. Loosely

Dentists Carrying on Another Business.

Mr. E. L. Sheridan asked whether it was permissible for a dentist to carry on another business (e.g., that of bookmaker or dancing master) at the same time as he is practising dentistry. The Chairman gave the following ruling: "It is permissible for a dentist to carry on any other occupation which is itself lawful at the same time as he is practising dentistry, and the Board have no power to interfere."

Registration.

The Chairman of Business, in the absence of Mr. Stirling, in his behalf called attention to the concluding words of the first schedule of the Dentists Act, 1921: "Provided that the powers of the Board in connexion with admission to, erasure from, and restoration to the Register shall be exercised by the Board itself and shall not be delegated to any committee." He pointed out that in accordance with these words all the business of the Registration Committee must be reported to and confirmed by the full Board before it can have any legal effect.

The Chairman gave the following ruling: "The proviso to Section 9 of the first schedule to the Dentists Act, 1921, relates only to the powers of the Board and the method of their exercise. The proviso does not apply to the purely ministerial act of the Registrar in admitting to the Register. The Registrar and other officials of the Board act under the direction of the Board, and when an applicant for registration has complied with all the requirements of the Act he must be registered, and the Board have no power to refuse him. It is true that in certain cases of doubt or when objection has been lodged the regulations of the Board provide that the Registrar shall refer the matter to the Registration Committee, who ascertain the facts. If the Committee find on the facts that the applicant has complied with the requirements of the Act he is registered. If they find otherwise the case is referred to the Board. The refusal to register is an exercise of one of the powers given to the Board. This power has never been delegated; it is always exercised by the Board itself whenever the refusal has been questioned by an applicant."

Penal Cases.

Ten cases were considered by the Board. Of these, two were forwarded for the consideration of the General Medical Council. A third case, in which the offence was covering, had been twice adjourned from previous sessions of the Board; the Board did not see fit to recommend erasure from the Dentists Register. In the remaining seven cases the offences consisted of various forms of advertising or canvassing; of these, two cases were dismissed with the customary warning as to future conduct, and the remainder were postponed till the November session of the Board, the dental practitioners concerned being required to supply satisfactory evidence of their conduct in the interval. In several of these seven cases the Chairman emphasised the fact that the offence was among the first of its kind to be brought before the Board, and a certain leniency was exercised in view of possible misunderstandings. The majority of practitioners concerned had discontinued the practices complained of, and readily undertook that there should be no repetition of them. Two cases were of advertising in newspapers, and in two other cases the practitioner had "sought to procure patients by sending out circulars to patients . . . suggesting that they should canvass" on his behalf. In one case an advertisement which had appeared in a theatre programme for 20 years was overlooked by a practitioner admitted to the Register under the Dentists Act, 1921. In another case advertisements had been hung in an hotel and in a restaurant, and a dentifrice had been supplied to chemists with transparencies and wrappers bearing

the name and address of the registered dentist in question; the latter had, however, taken steps to replace the chemists' stock and to secure the removal of the advertisements.

A Dentist's Street Signs.

The remaining case was that of a practitioner summoned to appear before the Council on a charge of advertising by exhibiting on numerous parts of his premises his name and qualification, together with other words (e.g., "The old-established dentist," "advice free," "moderate charges," &c.), "such being in size and quantity greatly in excess of anything required for legitimate professional purposes."

This practitioner, who had first been registered as in practice on July 22nd, 1878, had appeared before the General Medical Council in 1914 and 1915, and claimed to have received the sanction of that body for the signs complained of, as represented in photographs. He also claimed that his signs (some of which were in letters 18 inches high) were necessary in the busy thoroughfare in which he practised, and asked for a definite ruling as to what size of lettering would be sanctioned by the Board. The Chairman explained that the Board could not indicate exact sizes or brightness of lettering, or the number of times a practitioner might display his name, as that would entail visiting every place in the country where the profession of dentistry was carried on. Different rulings were necessary in different places; what the Board wished for, and intended to enforce, was that amount of indication which might reasonably be regarded as sufficient to guide persons desiring treatment to the location of, and entrance to, the premises where that treatment could be obtained. Nothing would be tolerated which might be construed as advertisement.

The practitioner indicated on a photograph the extent to which he felt prepared to modify his business signs; the Board could not accept the degree of modification proposed, and the case was adjourned till the November session, the Chairman advising the practitioner to reconsider his position and to be guided by the Board's advice.

PSYCHO-PATHOLOGY FOR THE GENERAL PRACTITIONER.

A SUGGESTED SCHEDULE OF TRAINING.

IN his Memorandum to the Minister of Health on Recent Advances in Medical Education (see THE LANCET, May 5th, p. 809), Sir George Newman points out that the practitioner's approach to mental disorder should be through a twofold training, in psychology and psycho-pathology. The former should belong to physiology in its wide sense, the latter falls within the clinical years. Between the two, or as part of either, may well come a brief course of a few lessons in medical psychology, with particular reference to psycho-neuroses, with instruction as to the examination of patients, the practice of suggestion and persuasion, psychological analysis, and mental testing. To these courses would be added clinical work, first in a mental hospital and then in the out-patient clinic for nervous and mental disorders at the general hospital.

The curriculum in mental diseases which he suggests is as follows:—

1. A short course of lectures (5–10) in normal psychology, preferably as part of the course in physiology (reflexes, habit, instinct, emotion, intelligence, the conscious and the unconscious mind, Binet tests, investigational methods, &c.).

2. Half a dozen explanatory discourses in abnormal psychology to be taken concurrently with clinical work in mental disease.

3. Ten or 12 systematic lectures on mental disease, concurrently with clinical work, and clinical demonstrations at a mental hospital of in-patients, pronounced cases (recent or chronic), and the usual types of insanity.

4. A series of demonstrations in the out-patient clinic for nervous and mental disorders at the general hospital.

What the student needs is instruction in the ætiology, symptoms, diagnosis, treatment and prognosis of the morbid mental states most commonly met in general practice. And Sir George Newman adds a statement which comprises suggestions as to the principal sphere of psycho-pathology for the medical practitioner. Its purpose is to set out in schedule form the main points and their mutual relationship.

"*Unsoundness of Mind*" as a comprehensive term, including mental deficiency and mental disorders: conception and ætiology of—including the biological aspect: physical and toxic factors and the relation of endocrine disturbance; and such mental factors as mental trauma, prolonged mental stress, the repression and operation of "complexes," and subconscious states. The relation of psychological to general medicine. The preventive importance of the foregoing considerations.

Mental Deficiency.—Degrees of, as defined by Statute. "Stigmata" of degeneration. Sociological importance of "moral imbecility." Distinction between mental deficiency and backwardness. Recognition of the more important clinical forms. Principal lines of treatment, supervision, and training.

Mental Disorders—including the psycho-neuroses and the more important of the psychoses. The symptomatology includes insomnia, confusion, delirium, hypochondriasis, depression, agitation, exaltation and excitement, illusions, hallucinations and delusions, sexual perversions, &c.

(*a*) *Psycho-neuroses.*—Hysteria, anxiety neurosis (including possible relation to exophthalmic goitre). Neurasthenia. Obsessional states: their symptoms, diagnosis, prognosis, and treatment. Differential diagnosis between so-called functional and organic conditions.

(*b*) *Psychoses.*—General paralysis: its ætiology, early symptoms, course, prognosis, and treatment. Mental disorders in connexion with epilepsy. Dementia præcox, paraphrenia, paranoia, and manic-depressive psychosis—outline of these conceptions and group forms and of their respective phases, with symptoms and treatment of the earlier stages. Confusional psychosis (states of confusion and delirium): toxæmia, exhaustion, and other ætiological factors; symptoms; diagnosis; prognosis and treatment; multiple foci of infection. Alcoholic psychoses: Delirium tremens, chronic alcoholic hallucinosis, alcoholic paranoia, and polyneuritic psychosis. Alcoholic excess and other psychoses. Drug-habit psychoses: Morphinism, cocainism, &c. Arterio-sclerotic psychosis, especially its earlier symptoms and their treatment, and senile dementia. Traumatic psychoses and others associated with organic brain disease. Endocrinal psychoses: Myxœdema; exophthalmic goitre, acromegaly, &c.

(*c*) *Epochal and other "Critical" Influences.*—Puberty, adolescence, climacterium, and senescence; gestation, puerperium and lactation. The relative likelihood at each of these periods of the onset of one or other of the psychoses. The milder mental disturbances, not amounting to a psychosis, liable to be associated with each period, and the treatment of these disturbances.

The Services.

ROYAL ARMY MEDICAL CORPS.

THE undermentioned retire on ret. pay: Lt.-Col. G. B. Riddick; and Maj. G. R. Painton, on account of ill-health contracted on active service, and is granted the rank of Lt.-Col.

Surg. Capt. G. O. Chambers, from Life Guards, to be Maj.

Maj. W. E. Marshall is restd. to the estabt.

Capt. and Bt. Maj. N. V. Lothian retires, receiving a gratuity, and is granted the rank of Maj.

General List: Capt. E. E. Lightwood (late of R.A.M.C.) to be Capt. Capt. J. C. Newman, having attained the age limit, is retired and retains the rank of Capt.

Capt. A. G. M. Middleton resigns his commn. and retains the rank of Capt.

Lt. H. Mather to be Capt.

W. J. Roche to be Lt.

General Hospitals: The undermentioned, having attained the age limit, are retired and retain their rank except where otherwise stated: Lt.-Cols. H. R. Vachell, T. Wallace, and E. Le C. Lancaster; Majs. W. M. Stevens (granted the rank of Lt.-Col.), P. R. Griffiths (granted the rank of Lt.-Col.), C. Lewis, D. R. Paterson, B. W. Broad, A. Howell, C. A. Griffiths, W. F. Brook, A. T. Waterhouse, J. S. Bury, and Sir W. Milligan; Capts. A. Sellars (Bt. Maj.), R. W. MacKenna, R. T. Williamson, C. H. Melland, W. J. S. Bythell, R. W. Marsden, A. Donald, H. Lund, C. Roberts, A. E. Barclay, R. C. Elsworth (granted the rank of Maj.), H. A. Scholberg, W. J. Greer (granted the rank of Maj.), T. M. Thomas (granted the rank of Maj.), W. Nicholson, E. Reid

(granted the rank of Maj.), F. G. Thomas, O. W. Morgan, C. B. Gratte, R. J. Coulter.

Capts. T. B. Mouat and E. M. Woodman relinquish their commns. and retain the rank of Capt.

Capt. R. Ollerenshaw relinquishes his commn. and is granted the rank of Maj.

Supernumerary for service with O.T.C.: Capt. C. H. Budd to be Local Maj. whilst comdg. a Section of the Field Amb., Cambridge University Contingent, O.T.C.

TERRITORIAL ARMY RESERVE.

Capt. E. J. Y. Brash relinquishes his commn. and is granted the rank of Maj.

Capt. W. Seymour, from 1st Northern Gen. Hosp., to be Capt.

Capt. S. G. Webb, from 1st Southern Gen. Hosp., to be Maj.

ROYAL AIR FORCE.

The undermentioned are granted temporary commissions in the ranks stated: Flight Lt. T. Sheehan; Flying Officer K. R. Smith.

The undermentioned Flying Officers to be Flight Lieutenants: W. E. Barnes and C. A. Lindup.

Squadron Leader A. G. Higgins relinquishes his temporary commission on ceasing to be employed.

INDIAN MEDICAL SERVICE.

Majors R. Kelsall, J. McC. A. Macmillan, C. A. Gill, R. F. Steel, G. W. Maconachie, E. W. C. Bradfield, A. W. M. Harvey, C. I. Brierley, J. B. D. Hunter, and E. T. Harris to be Lt.-Cols.

Ram Mansoor, Santosh Kumar Ganguli to be temp. Lt.

Public Health Services.

REPORTS OF MEDICAL OFFICERS OF HEALTH.

THE following table gives the principal statistics of a group of sanitary districts for 1922.

Name of district.	Estimated population (mid-year).	Birth-rate.	Death-rates per 1000 of population.				Death-rates per 1000 births.		
			All causes.	Tuberculosis.	Cancer.	Respiratory with influenza.	Infant mortality		Maternal mort. in childbirth.
							Legit.	Illegit.	
Stafford B. ..	29,260	16·9	11·2	1·2	1·0	3·0	67	167	0·0
Cambridge B. ..	58,900	15·3	11·4	0·8	1·5	2·5	68	97	3·3
Ramsgate B. ..	30,030	19·5	14·8	1·3	1·5	2·7	57	71	6·8
Finchley U.D. ..	46,830	16·6	10·5	0·6	1·4	1·8	43	173	2·6
Chingford U.D. .	9,494	21·1	10·4	—	—	—	56	200	0·0
Barnstaple R.D.	17,980	17·9	13·5	1·3	1·1	2·4	56	46	3·1
Plympton St. Mary R.D. .	21,080*	17·7	12·4	1·0	1·2	1·8	39	100	—
Thedwastre R.D.	8,493	21·8	12·6	0·2	0·9	—	59	200	0·0
East Stow R.D.	6,422	17·9	11·4	0·9	2·3	—	82	0	8·7

* For deaths. B., borough. U.D., urban district. R.D., rural district. Where a short line is given the figure is not available from the report.

Stafford.

Dr. J. T. MacNab reports that the very success of the infant welfare centre is hampering its work. More sessions are needed and a second health visitor. The "free milk" has been of the greatest value in promoting breast-feeding. The sanction of the Ministry is being asked for a grant towards work done for the centre by the orthopædic clinic. A large proportion of the water-closets are of the waste-water type and give rise to trouble through stoppages. The housing difficulty continues to be a serious problem. Dr. MacNab advocates the building of simple houses in rows or terraces for the poorest families, to be kept under supervision; the private landlord will not accept tenants of this type; some of them are known to be bad tenants.

Cambridge.

Dr. Andrew J. Laird reports an unusual outbreak of scarlet fever at Addenbrooke's Hospital which appears to have been due to a healthy carrier in the person of a wardmaid, E. B., who was subject to sore throats, but had never had an attack of scarlet fever. Of 32 cases, in addition to sore throats, 18 occurred in E. B.'s ward. Visits by E. B. to a distant home and to another ward to see the child of a friend were followed by cases of scarlet fever. E. B. had tea with the wardmaid who succeeded her and her successor sickened with scarlet fever in a few days. Otherwise the cases, which had continued from December, 1921, to May, 1922, ceased after E. B. left the service of the hospital. E. B. had chronic enlargement of the tonsils and a deflected nasal septum; her brother and sister had scarlet fever in 1910 but she escaped. Dr. Laird says that "the provision of more housing accommodation is still the great outstanding need." During the year 97 houses have been completed by the corporation and 38 by private enterprise. Dr. Laird advocates the building of a smaller and cheaper class of house and suggests mixing the three bedroom type with small terrace blocks of houses, containing two bedrooms, a living-room, and scullery and no bathroom. A nuisance has arisen from some of the college ditches. Sewage was not the cause, and the trouble was found by Dr. L. Cobbett to be due to the growth of algæ on the surface of the dead leaves. In one ditch a beautiful purple coloration was found to be due to the growth of *Bacillus violaceus* on the leaves. The public dental officer, Mr. W. B. Grandison, reports on the progress of the maternity and child welfare dental scheme inaugurated in 1921. The expectant and nursing mothers have free treatment (with dentures, &c. at cost price) on condition that they enrol their pre-school children for dental inspection once a quarter. Under the scheme 139 mothers have been treated and 91 pre-school children enrolled. The condition of the mothers' teeth before and after treatment was as follows:—

Condition of Teeth of Nursing and Expectant Mothers.

—	Sound.	Saveable.	Unsaveable	Missing.
Before treatment..	987	95	1525	1489
After ,,	1053	29	185	2829

The treatment for the children was advice as to correct diet and oral cleanliness and the application of nitrate of silver to decayed saveable teeth to arrest decay until such time as the teeth can be filled.

Ramsgate.

The two special points stressed by Dr. W. J. Bannister are housing conditions and the pollution of shell-fish. Housing conditions are as they were in 1919, and houses unfit for human habitation and overcrowding cannot be dealt with. The Ministry have promised a special inquiry with regard to shell-fish from polluted sources. Out of three notified cases of typhoid fever, two were associated with the consumption of cockles from the mouth of the Stour. The council have a shell-fish station where cockles, &c., can be sterilised. No charge is made for shell-fish intended for consumption in the borough and a nominal charge for those exported to other districts. A suspected milkman was caught in the act of watering milk. He was charged by his employer with "damaging milk" and fined £5 or 21 days, and 6*s.* 9*d.* for the damage to the milk. Analysis showed the milk to have 12 per cent. added water and to be 14 per cent. deficient in fat. There are two council schools and seven "non-provided." The former are satisfactory, but most of the latter are old, of defective design, and as regard lighting, ventilation, and equipment, cannot be considered to comply with modern requirements.

"Surprise" cleanliness inspections have effected considerable improvement in verminous conditions. Out of 166 children needing treatment for tonsils and adenoids, only 18 received operative treatment, many of the cases yielded to regular breathing exercises following dental treatment. Dr. Bannister favours the appointment of an organiser of physical training and the formation of classes for corrective exercises for commencing deformity, round shoulders, and flat-foot.

Finchley.

Dr. Wilson Jameson reports that the negotiations for a joint isolation hospital with Hornsey and Wood Green were successfully completed in 1922. Refuse continues to be dumped and burnt at the sewage farm, and negotiations are in progress with Friern Barnet for a joint scheme for the disposal of refuse. 188 houses were erected during the year, 102 of which were part of a municipal scheme. The opening of the new cleansing station has brought about a definite improvement in the cleanliness of the school-children. The school dentist, Mr. G. H. W. Randell, reports that the parents are the chief obstacle to conservative work on the temporary teeth of the school-children. Swimming is a feature at Finchley; the head teachers take a great interest in it and there were over 20,000 attendances during school hours at the public baths.

Chingford.

Dr. E. J. F. Hardenberg reports that the objectionable practice of dumping refuse at various tips has now been discontinued, and that furnaces erected at Old Church Brickfield now deal with the refuse in a satisfactory manner.

Barnstaple.

Dr. J. R. Harper draws special attention to the lack of an isolation hospital and to the need for greater cleanliness of persons milking and distributing milk.

Thedwastre and East Stow.

Dr. S. C. Houndsfield reports that the isolation hospital used for these two districts and Stowmarket, which was in great demand for most of the year, is "in a bad way," and that unless something drastic is done in the way of rebuilding, the work cannot be carried on and the hospital must be closed.

Correspondence.

"Audi alteram partem."

THE PAIN OF PSEUDO-ANGINA.

To the Editor of THE LANCET.

SIR,—In my paper on Angina Pectoris in THE LANCET of May 5th I referred to some experiments of Dr. E. P. Poulton in which a substernal oppressive pain was produced by artificially distending the œsophagus. Since then I have found that Stephen Hales[1] (who tested distensibility and fatigue of vascular coats, &c.) "found the gullet very distensible with a small force of water or wind," and that the gullet when dilated "compresses the descending aorta where the gullet is confined in its passage between that and the heart" (and so offers an explanation of vertigo). This observation is worth considering as a possible explanation of the particular class of quasi-anginal cases I described; and of the relief given by Mr. Verdon in angina by deflation of the stomach with a tube.

I am, Sir, yours faithfully,

Cambridge, May 11th, 1923. CLIFFORD ALLBUTT.

L'AFFAIRE SPAHLINGER.

To the Editor of THE LANCET.

SIR,—Having been commissioned to investigate Mr. Spahlinger's treatment, I visited his Institute in Geneva, in company with medical men from other British Dominions, and came to the following conclusions:—

Spahlinger has developed his methods after a long period, some 16 years, of research work. The methods at present are vaccine and serum therapy. Spahlinger claims and proves conclusively that tubercle bacilli, under different conditions of temperature, environment, &c., give forth different toxins, many of which he is able to isolate either as exotoxins or endotoxins. The methods of preparation of his various antitoxins, &c., are very elaborate and involve the description of many brilliant mechanical methods, which have not been adopted elsewhere. By his preparation of vaccines, he can apparently produce an artificial immunity such as that acquired by most humans who go through the world resisting all tuberculous infections. This has been well worked out by animal experiments.

The vaccine, in addition to its curative effects, may be used for prophylactic purposes, producing a degree of immunity that will last for many years. This vaccine therapy is used in treatment of all cases where the disease has not advanced too far. I saw many patients who had been treated by vaccines, and in most cases the results had been very good. Above all, the use of vaccine therapy seems to be specially indicated in what is commonly called surgical tuberculosis—e.g., glandular enlargements and bone infections. Some of the results obtained were most instructive, as in the gland cases the swellings had completely disappeared, with no evidence whatever of fibrous tissue response; from which one makes the inference that the cure resulted in the destruction of the bacilli rather than in the encapsulation by fibrous tissue.

The serum prepared by Mr. Spahlinger is a long process, and briefly the method is as follows: By the use of different processes he isolates different types of toxins of different chemical constituents and of profoundly varying degrees of virulence, as demonstrated by him in experiments both in vivo and in vitro. Each of these toxins is injected at varying intervals into separate horses over a period of one year. In addition he also prepares an immune serum against pneumococci and streptococci in order that mixed pulmonary infections may be combated. The sera from the different strains are mixed together to form his complete serum. The use of this is only indicated in advanced cases.

The methods of preparation are a model of thoroughness and scientific research. Everything is faithfully controlled and the findings filed. The preparation of the vaccine takes some nine to ten months, whilst the serum takes nearly four years. The course of treatment varies in different cases, whether vaccine or serum therapy or both are used. The vaccine course should not last more than six months, but it may be necessary to carry it on longer. The serum is only used when the conditions are severe.

I saw many patients that had been treated and many that were under treatment. The treatment appears to be most effective and almost dramatic in all cases and types of surgical tuberculosis, regardless of how long standing the condition may be. Pulmonary cases respond, but not so rapidly. Yet in many I could find no evidence of disease, although from trustworthy documentary evidence there had been gross lesions present.

One case shown was a young Englishman, who some eight months before had reached Geneva in a practically moribund state exhibiting extensive pulmonary tuberculosis in both lungs with ulceration of the larynx. Reliable West-end physicians had diagnosed these conditions. Under a course of vaccine with a short period of serum therapy the man had made a wonderful recovery, and when seen by me exhibited no evidence of tuberculous infection and was able to do a hard day's work.

My conclusions coincide with those of my colleagues. After carefully weighing over the evidence and fully realising how difficult judgment is in such cases, we are of the opinion that in his methods we have advanced into a realm quite unexplored by any other observers. We have no hesitation in stating that Spahlinger is working on lines which, if fully developed, will bring the treatment of tubercle into the same plane as the treatment of diphtheria, tetanus, and from the prophylactic aspect will give results as followed the administration of T.A.B. vaccine. Mr. Spahlinger's work is a great one and will, I am sure, if given sufficient light and support, do more to alleviate the sufferings of those afflicted with this disease and eradicate the tubercle bacillus in one year than all the present-day methods will do in 100 years.

I am, Sir, yours faithfully,

H. B. JEFFS, M.D. Toronto,
Immigration Medical Adviser, Canada.

1, Regent-street, London, S.W. 1, May 14th, 1923.

[1] Statistical Essays, ii. (Hæmœstatics), 1769, p. 178.

THE ABUSE OF VENEREAL CLINICS.

To the Editor of THE LANCET.

SIR,—May I ask if THE LANCET is aware of the following facts concerning the venereal clinics and whether it proposes to use its influence to rectify these matters?

1. That these clinics are abused by a great many persons who can well afford to pay.

2. That the free treatment of diseases contracted by promiscuous sexual intercourse is a direct encouragement to vice and immorality.

3. That this is an injustice to the ratepayers and a waste of public money.

4. That many practices hitherto more or less dependent on the treatment of these diseases have depreciated in value, and in some cases ceased to exist, owing to the abuse of the venereal clinics.

I am, Sir, yours faithfully,

C. F. MARSHALL, M.D., F.R.C.S.

Welbeck-street, W., May 9th, 1923.

*** The report of the Trevethin Committee is expected to deal with the sound points raised by our correspondent. The feeling is undoubtedly widespread that patients who can afford it should pay for their treatment at the clinics, but no satisfactory method of compulsion has yet been devised. In some places instruction and warning are given as well as treatment, and where this is done as it should be there can be no question of encouragement to vice. Until practitioners generally are equipped to deal efficiently with venereal disease, we have repeatedly advocated a panel of practitioners through whom treatment could be provided.—ED. L.

SUBCUTANEOUS CALCAREOUS DEPOSITS.

To the Editor of THE LANCET.

SIR,—In THE LANCET for May 5th (p. 900) Dr. J. R. Logan is reported as having shown a case of subcutaneous calcareous deposits in the hands in an elderly female, suffering from a mild degree of Raynaud's disease. Most similar cases, as far as I am aware, have shown sclerodactylia of the hands, and sclerodactylia is often accompanied by angiospastic symptoms resembling mild Raynaud's disease. I would suggest that the case is of the same class as the one of sclerodactylia with subcutaneous calcareous concretions in a woman that I described, jointly with Dr. R. F. Scholefield, in 1911.[1] The patients are mostly females. In Haldin Davis's case there were "Raynaud-like" symptoms, but no definite sclerodactylia, when brought before the Dermatological Section of the Royal Society of Medicine in March, 1912. The publications on cases of subcutaneous calcareous concretions and "Kalksteingicht" have become very numerous. In France and Italy cases have sometimes been described under the heading "Profichet's disease" owing to G. C. Profichet's thesis "Sur une variété de concrétions phosphatiques sous-cutanées (pierres de la peau)," Paris, 1900. Considerably earlier was the writing by a Swiss doctor, H. Weber, on the subject. A recent paper of interest on "Kalksteingicht" is that of E. Holländer.[2]—I am, Sir, yours faithfully,

London, May 8th, 1923. F. PARKES WEBER.

TREATMENT OF LIVER ABSCESS BY ASPIRATION.

To the Editor of THE LANCET.

SIR,—In their interesting paper on this subject in THE LANCET of May 12th Dr. P. Manson-Bahr and his collaborators refer to the method of evacuating a pointing abscess by means of a trocar, which was practised as long ago as 1828. So close and ingenious an approximation to this method was recommended by Aretæus, the Cappadocian, who flourished about the middle of the second century A.D., that I thought it might be of historical interest to quote the words of that great physician. The following sentences are from the translation by Francis Adams of the "Extant Works of Aretæus" (London: Printed for the Sydenham Society, 1856). Writing of liver abscess he says:—

"If the process incline inwardly, nature is far superior to the physician . . . . but if it incline outwards, it is bad not to make an incision, for otherwise the liver is corroded by the pus, and death is not long deferred. But, if you intend to make an incision, there is a danger of hæmorrhage, from which the patient may die suddenly; for hæmorrhage in the liver cannot be checked. But if you are reduced to the necessity of making an incision, heat a cautery in the fire to a bright heat and push it down to the pus, for it at the same time cuts and burns; and if the patient survive, there will run out a white, concocted, smooth, not fetid, very thick pus, by which the fever and other bad symptoms are diminished, and altogether the health is restored."

Dr. Manson-Bahr also stresses the diagnostic importance of right shoulder pain, which we now believe to be due to involvement of the under surface of the diaphragm and reference via the phrenic to the fourth cervical area. With this symptom of hepatic abscess Aretæus was quite familiar, though his interpretation of it was different. In referring to inflammations of the liver, he states:—

"If it be converted into pus, a sharp pain possesses the parts as far as the clavicle and the tops of the shoulders, for the diaphragm from which the liver is suspended is dragged down by the weight, and the diaphragm drags the membrane lining the ribs to which it is attached, and this membrane (the pleura) is stretched up to the clavicle and the top of the shoulders, which also are dragged down."

He further recognises that the painful, difficult respiration which may be present is due to impairment of diaphragmatic movement . . . . "for," he says, "the diaphragm does not coöperate with the lungs, by assisting them in contraction and dilatation."

I am, Sir, yours faithfully,

J. A. RYLE.

The Warden's House, Guy's Hospital, S.E., May 14th, 1923.

THE DOSE OF BAYER "205."

To the Editor of THE LANCET.

SIR,—In view of the dearth of experience at present available as to the dosage of Bayer "205," it may be worth while recording that as much as 5 g. have been given intravenously in 50 hours to a native of this country. There were no untoward symptoms, but although no readily recognisable albuminuria resulted the presence of a few casts in the urine could be detected for a month afterwards. During the last few months, however, no casts have been seen and the patient is back at work. The dosage suggested by Dr. G. C. Low and Dr. P. Manson-Bahr for the treatment of Europeans may require modification when the African native for whom the drug was prepared comes to be treated. His greater tolerance may enable him to receive a single curative dose of 3 to 5 g. or more. I am indebted to the courtesy of Dr. C. H. Hennings for placing a small quantity of the drug at my disposal.

I am, Sir, yours faithfully,

N. A. DYCE SHARP,

Kaduna, Nigeria, April 19th. West African Medical Service.

OTITIC MENINGITIS.

To the Editor of THE LANCET.

SIR,—In the report last week of my paper on Otitic Meningitis, read before the Section of Otology of the Royal Society of Medicine, there is an error which reads: "Otitic meningitis of the middle fossa and cortex of the brain was much more *frequent* than that of the posterior fossa." It should be *infrequent*. The large majority of cases of otitic meningitis commence in the posterior fossa, and involve the base of the brain.

I am, Sir, yours faithfully,

Harley-street, W., May 14th. EDWARD D. D. DAVIS.

[1] Brit. Jour. Dermat., 1911, xxiii., 276.
[2] Deut. med. Wochenschr., 1917, xliii., 431.

Parliamentary Intelligence.

HOUSE OF LORDS.

THURSDAY, MAY 10TH.

Dangerous Drugs and Poisons Bill.

THE Dangerous Drugs and Poisons Bill was read a third time and passed.

HOUSE OF COMMONS.

WEDNESDAY, MAY 9TH.

International Labour Conference.

Sir M. BARLOW (Minister of Labour) moved: "That this House approves the policy of H.M. Government respecting the draft conventions and recommendations adopted by the third and fourth sessions of the International Labour Conference held at Geneva in 1921 and 1922 respectively." He said that the subject of the use of white lead in paint proved a very contentious one at the 1921 Conference. The workers pressed for an international effort along the lines of eliminating altogether what they held to be a serious peril in industrial life. On the other hand, evidence was adduced, both as to the greater effectiveness of paint containing white lead and also as to the possibility of minimising, if not eliminating, the peril to the worker if proper precautions were taken. The British Government had reserved freedom of action in the matter, and proposed to have further consultation and to take up, if necessary, with the labour organisation at Geneva the question of the amendment of the draft convention, Article 1 of which prohibits, with certain definite exceptions, the use of white lead or sulphate of lead in the internal painting of buildings; and Article 3 of which prohibits, with certain exceptions, the employment of males under 18 years of age, and of all females, in any painting work of an industrial character involving the use of white lead. The second recommendation at the 1921 Conference dealt with the protection, before and after childbirth, of women wage-earners in agriculture. This raised the whole question of the famous Washington Maternity Convention, which the Government had refused to ratify on the ground that we had already, under the National Health Insurance Act, and the Factory Acts, a scheme of this sort. The Washington Maternity proposals were, to some extent, more intensive, and the existing English provisions were clearly much more extensive. For each woman affected, the Washington provision would give rather more elaborate protection. For instance, they would require six weeks off work before and after confinement; while the analogous provisions of our Factory Act was four weeks off work after confinement. On the other hand—and this was the great difference—the Washington Maternity proposals only affected women who were themselves engaged in industry. In this country there were about 440,000 married women so engaged. But the English provisions under the Health Insurance Act covered, not only women engaged in industry, but the wives of employed contributors under the Act. Further, the Maternity and Child Welfare Act, 1918, and the schemes of local authorities under that Act, with the aid of the State grant, provided for the use of all women such services as midwives and doctors, post-natal treatment, supply of milk, and so on. In these circumstances, and for reasons similar to those which prompted the late Government to refuse to ratify the Washington Maternity Convention for industry generally, the Government did not propose to accept this recommendation. The Government proposed to accept the recommendation that women wage-earners in agricultural undertakings during the night should be given not less than nine hours, if possible consecutive, off work. It was proposed also to accept a recommendation of a similar character providing for not less than ten hours off work for children under the age of 14 years of age of either sex, and female young persons of between 14 and 18 years of age.

On a division Sir M. Barlow's motion was carried by 235 votes to 176.

Milk for Infants and Children.

Mr. HOPE SIMPSON asked the Minister of Health whether he proposed to take any action in accordance with the recommendations of the Departmental Committee on Distribution and Prices of Agricultural Produce, recorded in para. 142 of their Interim Report on milk and milk products, with the object of stimulating the consumption of liquid milk by infants and children; and whether he would consult other departments concerned, including the Board of Education, in furtherance of this object.—Mr. NEVILLE CHAMBERLAIN replied: This matter is under consideration. I may, however, remind the hon. Member that a circular and pamphlet were issued by my department in October, 1920, in regard to the use of milk, in which advice was given as to the best means of disseminating information on the special value of milk as a food, the desirability of largely increasing the consumption per head of the population, and the need for an adequate supply of fresh and pure milk.

The Cost of Slum Clearances.

Captain WEDGWOOD BENN asked the Minister of Health on what grounds he based his estimate of £230,000 as the money required to assist local authorities in slum clearance in any one year; and whether, if local authorities demanded a larger sum, the necessary estimates would be introduced.—Mr. NEVILLE CHAMBERLAIN replied: The estimate of £230,000 referred to in the memorandum explaining the financial provisions of the Housing Bill was the best estimate that could be made of half the annual deficit on schemes to be approved under Clause 1 (3) of the Bill which local authorities might be expected to carry out in the near future. If local authorites submit schemes which would involve in the aggregate a larger contribution from the Exchequer the matter will be further reviewed on the annual estimates.

Small-Pox in Doncaster.

Mr. BROMFIELD asked the Minister of Health whether he was aware that two cases of small-pox were recently removed from a street in Doncaster three weeks after vaccination had been performed in each case; and whether any other small-pox cases at Doncaster, or elsewhere, during the past two months had developed after recent vaccination.—Mr. NEVILLE CHAMBERLAIN replied: The answer is in the negative. I am informed by the medical officer of health that in no case has small-pox occurred in Doncaster after recent vaccination where the interval between vaccination and the development of the disease has exceeded 14 days; and I am not aware of the occurrence of any such case elsewhere during the past two months.

Minimum Salary for Health Visitors.

Mr. ALBERT BENNETT asked the Minister of Health if he could now make any statement for the guidance of local authorities as to the reasonable standardised minimum salary which should be offered by them to health visitors.—Mr. NEVILLE CHAMBERLAIN replied: The salaries of health visitors cannot be considered without reference to other analogous occupations, and the general question is still under my consideration. I am arranging that a deputation on the subject shall be received at my department shortly, when I hope that the situation will be further elucidated.

Dental Registration Fees.

Mr. SEXTON asked the Minister of Health if, in accordance with the statement of the chairman of the Dental Board in the House on March 8th, 1922, any attempt to lessen the annual fees demanded from dentists registered under the Dentists Act, 1921, was to be made in the year commencing January, 1924.—Mr. NEVILLE CHAMBERLAIN replied: The undertaking to which the hon. Member refers was an undertaking to reconsider the fee in two years' time from March, 1922. No undertaking was given that the fee would be reduced. I am informed that the Dental Board will duly consider the matter in accordance with the undertaking given by their chairman, but they are not yet in a position to come to a decision.

Overcrowding and Tuberculosis.

Mr. TREVELYAN asked the Minister of Health what proportion of the patients under the care of the London tuberculosis dispensaries lived in dwellings with one or two rooms only; and whether he intended to make any special provision for dealing with the overcrowding in the Metropolitan area.—Mr. NEVILLE CHAMBERLAIN replied: I have no information as to the first part of the question. As to the second part, overcrowding in the Metropolitan area will be automatically reduced as the erection of new houses proceeds.

Administrative Allowance of Approved Societies.

Sir KINGSLEY WOOD asked the Minister of Health when he proposed to lay before Parliament the draft of the regulation to reduce the administrative allowance of approved societies; and what opportunity would be afforded of Parliamentary discussion.—Mr. NEVILLE CHAMBERLAIN replied: The draft regulation referred to by the hon. Member will be published within the next few days and the regulation will be made and laid before Parliament as soon as the statutory period of 40 days has elapsed. There will be usual opportunities for Parliamentary discussion under the procedure whereby the regulation becomes operative unless within 21 sitting days either House signifies its disapproval.

Exemptions from Vaccination.

Sir WALTER PRESTON asked the Minister of Health what percentage of newly-born children were vaccinated in 1907; what percentage of children were vaccinated in 1922; and what was the total number of exemptions from vaccination granted in 1907, and the total number of exemptions in 1922.—Mr. NEVILLE CHAMBERLAIN replied: In 1907 70·9 per cent.

of the newly-born children were vaccinated; in 1921 the percentage was 38·3. The total number of exemptions from vaccination was 76,709 in 1907, and 382,155 in 1921. Figures for 1922 are not yet available.

Small-pox Statistics.

MR. BECKER asked the Minister of Health if he could give figures showing the number of small-pox cases and suspected cases notified during 1921, 1922, and for the first three months of 1923.—MR. NEVILLE CHAMBERLAIN replied: The following are the figures:—

Period.	No. of cases notified.	Other cases reported but not notified.	Cases subsequently withdrawn or not regarded as small-pox.	Net total of cases.
1921 ..	343	23	30	336
1922* ..	1042	17	80	979
1923† ..	533	5	18	520

* The figures are provisional, as full particulars of certain cases have not yet been received.
† First three months.

Infanticide.

MR. WILLEY asked the Secretary of State for the Home Department whether, in view of the fact that in 1922 the Infanticide Act was passed providing that a woman charged with the murder of her infant child may, under certain conditions, be convicted of manslaughter, he could state how many women were now in gaol for offences which, had this Act existed at the time of their conviction, would have come under it; whether he would give the average term of imprisonment they had collectively suffered; whether the Home Office had reviewed all such cases; and, in that event, how many women had been released, how many had had their sentences reduced, and how many had not been notified of any concession whatever.—MR. BRIDGEMAN replied: Only one woman convicted before the passing of the Infanticide Act and sentenced to death for the murder of her newly-born child is now in prison. She had served a previous sentence of 18 months for the manslaughter of another child. She has now served 26 months under her present sentence. Further interference with the sentence cannot yet be recommended.

Canadian Cattle and Tuberculosis.

Lieut.-Colonel FREMANTLE asked the Minister of Agriculture if his attention had been called to the report of the medical officer of health to the Manchester port sanitary authority to the effect that the first batch of Canadian cattle were not altogether free from pulmonary tuberculosis; and what steps were being taken to test imported cattle for tubercle infection and to exclude the importation or distribution of cattle so infected.—Sir R. SANDERS replied: The reply to the first part is in the affirmative. Canadian store cattle imported into this country are not required to undergo a test as to freedom from tuberculosis. Cattle affected with tuberculosis to a dangerous degree would be liable to be dealt with under the Milk and Dairies (Amendment) Act, 1922.

Post Office Medical Referees' Reports.

MR. AMMON asked the Secretary to the Treasury whether he would consider introducing a regulation to enable Post Office employees appealing to a medical referee to be supplied with a copy of the referee's decision, for which the appellant pays.—Sir WM. JOYNSON-HICKS (Postmaster-General) replied: The referee's report is made in confidence; and there would be strong objections to its being communicated to the appellant. The deposit paid by the latter does not represent the referee's fee.

THURSDAY, MAY 10TH.

Appeal Tribunal Cases.

MR. PIELOU asked the Minister of Pensions the number of cases brought before the House of Lords appeal tribunal, Birmingham, for the six months ending Dec. 31st, 1922, and also for the same period in 1921; and if he would state the result of these appeals.—Colonel GIBBS replied: During the six months ending Dec. 31st, 1921, eight tribunals sat at Birmingham. During the six months ending Dec. 31st, 1922, five tribunals sat at that centre. The results of the sittings during the two periods in question were as follows: (1) Six months ending Dec. 31st, 1921: Heard, 2746; allowed, 693. (2) Six months ending Dec. 31st, 1922: Heard, 1285; allowed, 312.

Lip-Reading and Ex-Service Men.

Captain BERKELEY asked the Minister of Pensions whether lessons in lip-reading were granted as of right to all ex-Service men suffering from deafness due to war service; whether he was satisfied that 25 lessons were sufficient to enable unlettered or backward men to acquire proficiency in lip-reading; and whether, if cases could be brought to his notice of men who had been unable to learn lip-reading in the prescribed number of lessons, he would be prepared to increase the number of lessons in such cases.—Major TRYON replied: Where a man is likely to benefit by it, instruction in lip-reading is provided by my department. After a certain amount of instruction proficiency in lip-reading is entirely dependent upon regular practice, and it is the considered opinion of my advisers that a course of 25 lessons affords the man of average intelligence ample opportunity of acquiring the faculty. Experience has shown, however, that the unlettered man of less than normal intelligence is incapable of acquiring facility in the art. I shall be pleased to inquire into any individual cases if the hon. and gallant Member will let me have particulars.

Motor Cycle Pillion Accidents.

MR. BURGESS asked the Secretary of State for the Home Department the number of serious and fatal accidents, respectively, which had occurred during each year since 1919, as a result of riding on the pillions of motor bicycles.—Colonel ASHLEY (Parliamentary Secretary to the Ministry of Transport) replied: No separate record is kept, either by the Home Office or by my department of accidents in which motor cycles with pillion riders are involved. Although the Minister of Transport is not vested with any legal powers in the matter, it is the practice of my department to hold informal inquiries and inspections into the circumstances attending all serious road accidents. There is no evidence, so far as these investigations go, that accidents on the nature referred to are particularly frequent, or show any tendency to increase in number.

Deafness among Children.

MR. FOOT asked the President of the Board of Education the number of children in the special schools for teaching the deaf; and if there were any statistics to show the number of deaf children in the country for whom no educational provision was made.—Mr. E. WOOD replied: The accommodation in the certified special schools for the deaf is 4636. The latest returns from local education authorities show that there are approximately 6000 deaf and dumb and partially deaf children in the country. On the basis of these figures the provision for such children in special schools is deficient by about 1400 places.

Cost of Tuberculosis Treatment.

MR. LEACH asked the Minister of Health the total amount spent by local authorities on tuberculosis treatment during 1922.—Lord E. PERCY replied: The gross expenditure of local authorities during the financial year ended March 31st, 1923, is estimated to amount to £2,813,610, exclusive of capital expenditure for which particulars are not yet available.

Death-Rate in Doncaster.

MR. RILEY asked the Minister of Health what was the death-rate in the Doncaster rural area, and what was the infant mortality in this district.—Lord E. PERCY replied: In the year 1922 the death-rate in the Doncaster rural district was 12·2 per 1000 living, and the infant mortality-rate 89 per 1000 births.

Medical Officer of Health at Frizington.

MR. GAVAN-DUFFY asked the Minister of Health if he would state what salary was paid per annum to the late medical officer of health at Frizington, Cumberland; if his salary was fixed by agreement; had the period stated in that agreement expired; if not, had he agreed to its cancellation, and, if not, why had the Minister of Health agreed to the appointment of a second medical officer of health before the agreement with the first one had expired or been properly terminated; could he state if the present medical officer of health for Frizington had any qualification in the public health service, and at what salary he had accepted the position.—Lord E. PERCY replied: The salary for this part-time appointment agreed between the Council and the medical officer of health was £130 per annum, rising by £5 per annum to £150. His appointment was terminable by the council without my consent at three months' notice, which was given to expire on March 31st last. The council advertised the vacancy at £100 per annum, and have had one applicant, who has not a diploma in public health.

MONDAY, MAY 14TH.

Medical Practice in the Colonies.

Lieut.-Colonel FREMANTLE asked the Under Secretary of State for the Colonies in which colonies it had recently been considered necessary to amend the ordinances regulating medical practice in order to enable persons not holding qualifications registrable in the United Kingdom to practise medicine; and whether this modification of the standard required for registration or licensing of medical practice had the approval of the Secretary of State for the Colonies.—

Mr. ORMSBY GORE replied: The only three colonies in question (including dependencies) are British Honduras, Turks Islands, and St. Vincent. His Majesty has not been advised to disallow the ordinances in question, but in two of the three cases the governor has been instructed not to use the power conferred upon him without previous reference to the Secretary of State except in emergency. The Secretary of State attaches great importance to the maintenance of a high standard of professional qualification in the colonies, but he recognises that there may be circumstances in which rigid adherence to the rules in force in the United Kingdom are impracticable in some of the poorer or less developed communities.

Medical Officers in West Indies.

Lieut.-Colonel FREMANTLE asked the Under Secretary of State for the Colonies what payment had been made to the medical officers in the West Indian Colonies who have carried out treatment of yaws on an intensive system during the past four years; and what saving to the revenue had been effected by closing the hospital in Granada owing to the success of this treatment.—Mr. ORMSBY GORE replied: The medical officers in Granada undertook to perform this work without additional remuneration; but, as the committee appointed to inquire into the Windward Island Medical Service have recommended that some special allowance should be granted, the matter, together with the other recommendations of the committee, is receiving consideration. The Yaws Hospital was closed at the end of 1921. The cost in that year was £902; but as a certain amount of treatment is still being carried out, I am unable to say what proportion of this sum represents a saving.

Gas-poisoning Experiments.

Mr. LANSBURY asked the Under Secretary of State for War what species of animals were being used in gas-poisoning experiments at the Porton experimental station, near Salisbury; how many animals had been employed in the research since Feb. 23rd, 1922, when the figures were given in reply to a question by Mr. J. F. Green; and whether any of the experiments had consisted in dropping bombs containing poison gas among these animals.—Lieut.-Colonel GUINNESS replied: The species and numbers of animals which have been employed in the experiments referred to since Feb. 23rd, 1922, are as follows: cats, 66; goats, 48; guinea-pigs, 118; mice, 148; monkeys, 23; rabbits, 139; rats, 209. None of the experiments have consisted in dropping bombs containing poison gas among these animals.

Open-air Schools for Children.

Mr. FOOT asked the President of the Board of Education the number of local education authorities who had established open-air schools for the reception of children suffering from physical disability, and the total number of such schools now established throughout the country.—Mr. E. WOOD replied: Twenty-nine local education authorities have established 37 day open-air schools, and nine have established 13 residential open-air schools. In addition, voluntary managers have established 12 residential open-air schools; making a total of 62 open-air schools in England and Wales.

Alleged Contraventions of Lunacy Act.

Mr. THOMAS GRIFFITHS asked the Attorney General whether any steps had been taken by the Board of Control to inquire into the number of instances in which the managers of mental institutions run for profit had themselves taken measures, in contravention of the Lunacy Act, to summon doctors and magistrates for the incarceration of voluntary boards; and in the case in which one such offence had been brought to light in the Law Courts had any disciplinary measures been resorted to by the Board to check the recurrence of abuse.—Mr. NEVILLE CHAMBERLAIN replied: The Board of Control have no record of any instance in which such action has been taken in contravention of the Lunacy Acts.

Dentists Act Amendment Bill.

The Dentists Act, 1921, Amendment Bill, introduced by Lieut.-Col. Dalrymple White, which provides that the age of ex-Service candidates for qualification as dentists shall be reduced from 23 to 21 years, was read a second time.

TUESDAY, MAY 15TH.

Medical Service in the Army.

Lieut.-Colonel FREMANTLE asked the Under Secretary of State for War if he was aware that, owing to discontent in the Royal Army Medical Corps, especially among the better qualified officers, many of the best had already resigned and others were prepared to send in their papers; and what steps did he propose to take to avoid such weakening of an essential arm of the service.—Mr. GWYNNE replied: I am aware that an unsettled feeling has been caused in the army generally by uncertainty as to the future establishment and rates of pay, and by the conditions of service that have prevailed during the period of reconstruction after the war. In the case of medical officers the attractions of the civil profession have doubtless reinforced these causes. It is hoped that the army will now be able to return to normal settled conditions, and it is not proposed at present to take any special steps in regard to the Royal Army Medical Corps.

Neurological Hospital at Saltash.

Mr. FOOT asked the Minister of Pensions when the premises of the Queen Alexandra's convalescent centre at Saltash were to be used for the treatment of neurasthenic patients, and the number of such patients who were to be treated there.—Captain CRAIG replied: It is hoped that these premises will be ready for the accommodation of about 400 neurasthenic patients in the course of the next two months.

Medical Certificates and the Drug Habit.

Sir EDWIN STOCKTON asked the Secretary of State for the Home Department whether, in view of the increase of the drug habit, he was in possession of any information to show that there was any abuse of medical certificates containing drugs which did not contain words prohibiting repetition; and, if so, whether he would take any action thereon.—Mr. BRIDGEMAN replied: The regulations made under the Dangerous Drugs Act expressly provide that the drugs shall not be supplied more than once on the same prescription, with an exception for cases in which the prescription explicitly directs that the drugs may be supplied at specified intervals on not more than three occasions; and, in view of this, the Committee which considered the regulations thought it unnecessary to require that the words, "not to be repeated," should be inserted in the prescription. To obtain or supply drugs on a prescription otherwise than in accordance with the regulations is an offence against the Act; and I have no reason to think that the regulation in question is not generally observed.

Medical Officers of Pensions Ministry.

Mr. CAIRNS asked the Minister of Pensions what were the names, grade, and salary of the 33 whole-time medical officers in the employ of the Ministry who had not served in the forces of the Crown; where they were employed; and whether action would be taken to replace these officers by men who served in the great war and in consequence suffered financial loss.—Captain CRAIG replied: I regret that in the answer which I gave last week the number of non-Service medical officers was overstated, the correct number being 31. It is, and always has been, the policy of the Ministry to give preference to ex-Service candidates for appointments whenever that course can be followed consistently with due regard to efficiency.

DONATIONS AND BEQUESTS.—The late Mr. William Howard Palmer, of Wokingham, Berks, left by will £3000 to the Royal Berkshire Hospital.—Among other bequests the late Miss Anne Louisa Black, of Castle Bank, Cupar, Fife, left £1000 (in her own memory) of which the income is to be applied by the Sick Nursing Society and Women's Guild of Cupar in providing food and clothing on the lines of the Samaritan Society and for small pensions to deserving women; £1400 for division between the Royal Infirmary, Edinburgh, and the Longmore Hospital; £1000 (in memory of her late brother Dr. Alexander Black) upon trust to apply the income in the provision of bursaries, scholarships, library books, or other purposes in connexion with the Royal College of Physicians, Edinburgh; £500 to the Adamson Cottage Hospital, Cupar, for an Anne Louisa Black bed for women and children; £500 to the Sick Children's Hospital; £500 to the Royal Blind Asylum for the training of men blinded in the war; and £100 to the Dundee Royal Infirmary. Certain residues of the property will go to the Sick Nursing Society, Cupar; the Edinburgh branch of the National Society for the Prevention of Cruelty to Children; the Edinburgh Royal Infirmary, and other charitable institutions.—Among other bequests the late Mrs. Mary Alice Clegg, of Alston Londes, Waterhead, Oldham, left £1000 to the Oldham Royal Infirmary; £250 each to St. Dunstan's Blinded Soldiers' Fund, Oldham Poor Children's Holiday Fund, and the Society for the Prevention of Cruelty to Children; £100 to the R.S.P.C.A. The residue of the estate, if not exceeding £8000, to be divided between the Oldham Educational Committee for Scholarships, and for certain schools.—Lord Glendyne has given £200 in response to the appeal for £30,000, urgently required by the Cancer Hospital, Fulham-road, for the fitting up of an operating theatre and for structural alterations.

Medical News.

ROYAL COLLEGE OF PHYSICIANS OF LONDON.—An extraordinary Comitia of the College was held on May 10th, the chair being taken by Sir Humphry Rolleston, the President. The following were admitted as Fellows, having been elected to the Fellowship at the last Comitia.: Drs. R. Hingston Fox, J. Porter Parkinson, D. G. Hall, W. S. Fox, F. E. Tylecote, J. Owen, L. G. Parsons, John Parkinson, A. H. Gosse, and P. H. Manson-Bahr. The following were nominated by the Council: Sir Hugh Kerr Anderson, M.D., and Dr. Byrom Bramwell.—A letter was read from Dr. J. J. Perkins resigning his examinership in medicine as from July next.—A report was received from Dr. Drewitt, who represented the College at the bicentenary of the death of Sir Christopher Wren. A vote of thanks for his services and for his report was accorded to Dr. Drewitt.—Dr. Edwin Goodall was appointed a representative of the College at the University of Wales vice Dr. H. W. G. Mackenzie resigned. The thanks of the College were accorded to Dr. Mackenzie.—An address to His Royal Highness the Prince of Wales, President of St. Bartholomew's Hospital, on the occasion of the 800th anniversary of its foundation, was sealed.—The President then dissolved the Comitia.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.—An ordinary Council meeting was held on May 10th, with Sir Anthony Bowlby in the chair.—Surgeon Vice-Admiral Sir Robert Hill was introduced and was admitted a Fellow of the College.—A report from the Court of Examiners respecting candidates found qualified for the diploma was read, and diplomas were granted to 155 candidates mentioned in the report.—A report was read from the Secretary to the Conjoint Examining Board respecting candidates found qualified for the Diploma in Public Health, and diplomas were granted, jointly with the Royal College of Physicians, to 20 candidates mentioned in the report.—A report was read from the Secretary to the Conjoint Examining Board respecting candidates found qualified for the Diploma in Tropical Medicine and Hygiene, and diplomas were granted, jointly with the Royal College of Physicians, to 10 candidates mentioned in the report.—Mr. Hugh Lett, F.R.C.S., was elected a Member of the Court of Examiners.—A letter was read from the Clerk to the Barbers Company stating that the Court of the Company had resolved that, subject to the consent of the Royal College of Surgeons, the Thomas Vicary lecture should be continued for a further period of five years. The Council agreed to accept the offer.

A HOSPITAL FOR RICKETS NEAR DUBLIN.—A committee has been formed in Dublin, under the chairmanship of Dr. Ella G. Webb, for the purpose of establishing a hospital for rickets near Dublin. At present the accommodation for children in the special and general hospitals of the city is sufficiently taxed, and there is no institution specially suitable to deal with cases of rickets. A lady has offered the committee £5000, and it is believed that if another £5000 can be obtained there will be enough to meet initial expenses. Near Dublin there are plenty of sunny sites with sea or mountain air suitable for treating such cases.

MANCHESTER AND DISTRICT RADIUM INSTITUTE.—At the annual meeting held in Manchester on May 10th the chairman expressed his appreciation of the fact that the Institute was progressing satisfactorily in every way except financially. The expenditure has exceeded income by several hundred pounds, though the cost of radium has fallen by about 40 per cent. During 1922, 799 persons presented themselves at the Institute with a view to radium treatment; 514 emanation plates and 1281 emanation tubes were made during the year, and 59 cases of malignant disease, exclusive of rodent ulcer, were rendered free from signs and symptoms of disease. The total number of malignant cases treated was 584, and the usual average of something over 10 per cent. of perfect immediate results had been maintained. The number of rodent ulcers treated was 85, and 41 had apparently been cured, in addition to 15 patients suffering from non-malignant conditions. The attendances were 4000 of out-patients and 912 of in-patients. It was also stated that Dr. J. Holker had studied the effects of alpha, beta, and gamma rays on serum. These rays, it was found, had a marked effect on serum and on its colloidal condition—a condition for the determination of which by a special technique only a very small quantity of blood was required. The colloidal changes in blood due to absorption of a vaccine injected subcutaneously could be followed by this method. A natural extension of this work would be to follow the colloidal changes in blood due to the absorption of the products of the destruction of a tumour in a patient who was treated by radium.

INDIAN MEDICAL SERVICE: ANNUAL DINNER.—This dinner will be held on June 20th, at 7.45 P.M., at the Trocadero Restaurant, London, W. 1.

ST. PAUL'S HOSPITAL.—The annual board of governors will be held at the "Pickett-Thomson" Research Laboratory, St. Paul's Hospital, Endell-street, London, W.C. 2, on Wednesday, May 23rd, at 4 P.M.

UNIVERSITY OF MANCHESTER.—Prof. J. S. B. Stopford has been appointed Dean of the Medical School from September next in succession to Prof. R. B. Wild. A ceremony for the conferment of degrees in the Faculty of Medicine will be held on July 14th.

UNIVERSITY OF DURHAM COLLEGE OF MEDICINE, NEWCASTLE-UPON-TYNE.—The new building for the Bacteriological Department will be opened next Friday, May 25th. Visitors will be received by Sir David Drummond, president of the College of Medicine, in the King's Hall, Armstrong College, at 4.30 P.M., and at 5 P.M. an address will be delivered by Sir Frederick Andrewes in the Physics Lecture Theatre. The opening and inspection of the new building will follow.

LLANDRINDOD WELLS OPEN MEDICAL GOLF CHALLENGE CUP.—This event was played off on May 2nd, 3rd, and 4th. The winner was Dr. D. Saunders Jones, who beat Dr. F. C. Hunot, the winner last year, by 6 and 5. Lady Mayo Robson presented the cup and replica. The competitors were entertained to luncheon at the Golf House by the local committee. Toasts were proposed and responded to by Dr. Jones-Evans and Dr. Baird, who spoke highly of the claims of Llandrindod as a health resort.

WELLINGTON (N.Z.) GENERAL HOSPITAL.—At a meeting of the Hospital Board held on March 22nd it was decided to provide over a three-year period a sum of £150,000 to remodel and extend the hospital, the additions to include a new admission block and a new genito-urinary block. If the board could establish its right to incur such expenditure, it was agreed to send the medical superintendent, Dr. D. McD. Wilson, on a visit to the U.S.A. and Canada, in order to study the latest hospital methods.

COURSE ON MEDICAL HYDROLOGY.—This course, already announced as taking place from May 29th to June 2nd, will include lectures at the University of London, South Kensington, and demonstrations at the National Institute for Medical Research, Hampstead, at the Special Surgical Hospital at Shepherd's Bush, and at Harrogate. Medical students interested in physical methods of treatment are invited to avail themselves of the course, without fee. Those who propose to attend are asked to send their names, preferably before May 21st, to the Hon. Secretary, Dr. W. Edgecombe, c/o University Extension Department, University of London, South Kensington, S.W. 7.

ANCOATS HOSPITAL, MANCHESTER.—At the ninety-fourth annual meeting it was stated that there was still a deficit of £8000 on the new nurses' home. The number of in-patients in 1922 was 2307, compared with 2194 in the year before, and of out-patients 8937 compared with 9132; accident cases numbered 18,912, against 17,361; 1329 major operations were performed, against 1139 in 1921; and 477 minor operations, against 722. Attendances at the X ray department 3395, compared with 3156. There was a decrease of £2938 in income, attributable to the severe trade depression, but the workpeople's contributions continued to be maintained. Expenditure showed a reduction of £3691.

SOCIETY FOR RELIEF OF WIDOWS AND ORPHANS OF MEDICAL MEN.—The report for 1922 will be submitted to the annual meeting, which is to be held at 11, Chandos-street, London, W. 1, on May 23rd at 5 P.M. Since the last report seven new members have been elected and four have been lost owing to death and resignation. The Society now consists of one honorary, 166 life, and 139 ordinary members, making a total of 306. During the year the Society has suffered the loss of its President, the late Sir Alfred Pearce Gould, Dr. F. de Havilland Hall being elected to take his place. The invested capital of the Society now stands at £146,650; under the by-laws only income may be used for the payment of grants and expenses. The income from investments amounted to £4744, £321 was received from subscriptions and donations, making a total income of £5065; the working expenses were £335. During the year three widows came on the funds and three died; on Dec. 31st, 1922, there were 51 widows and four orphans in receipt of grants. £1407 10s. was distributed in grants during the year. The income limit for widows has been raised from £100 to £125, and that of orphans from £50 to £60, so that in future any widow of a member left with an income of £125 or under and any orphan with an income of £60 or under, is eligible to receive a grant from the Society.

GRESHAM LECTURES ON PHYSIC.—Sir Robert Armstrong-Jones will deliver four lectures at Gresham College, in the City of London, at 6 P.M., on Tuesday, May 22nd, and the three days following. The subject will be Medical Hydrology and Hydropathy, with special regard to the climate of health resorts in England and Wales. The lectures are free to the public.

MEDICAL GOLFING SOCIETY.—The annual summer meeting of this society will be held at Addington Golf Club on June 14th. All medical men on the Register are eligible for membership of this society. Entries for the meeting must be accompanied by the annual subscription of 10s., if due, and should be sent, with lowest handicap, to the hon. secretary, Dr. Rolf Creasy, jun., 25, Devonshire-place, London, W., on or before Monday, June 11th.

SOUTHAMPTON AND DISTRICT ANNUAL MEDICAL DINNER.—The fourth dinner was held on May 9th at the South Western Hotel, Southampton, and was well attended. The chairman, Dr. G. S. Farquharson, made a reference to the late Dr. W. P. Purvis, whose memory was honoured in silence. A musical programme was supplied by Mr. Leonard Munn and Dr. H. L. Hamilton, and a very entertaining evening was spent.

INVERNESS HOSPITAL.—The annual report states that the total number of patients for the year was 869 in-patients and 400 out-patients, a considerable number of the latter being discharged soldiers and sailors. H.M. the Queen visited the hospital on August 24th, when she inspected the children's wards and other parts of the institution. The year opened with a debt of £2762 and closed with a balance of £1569, the apparent improvement being due simply to the withdrawal of capital which had been necessary to meet deficiency in revenue for some years.

HERTFORDSHIRE COUNTY SANATORIUM.—On May 7th the new sanatorium established by the Hertfordshire County Council at Ware Park, near Hertford, was opened by the Marchioness of Salisbury. Sir George Newman, Chief Medical Officer of the Ministry of Health, stated in the course of a short speech that although 100 persons a day died of what John Bunyan called "the captain of the men of death," there was undeniable evidence that tuberculosis was curable for the large proportion of the population affected by it, to the extent, at least, that they might be restored to a long period of useful life. In 1850 the deaths were 3200 per million, but the number was now 800, or a reduction to one-fourth in about 70 years.

ROTARY INTERNATIONAL ASSOCIATION: A SECTION OF MEDICINE AND PHARMACY.—At the invitation of Councillor George Whitfield, who is himself a pharmacist, 20 Rotarians connected with pharmacy, medicine, and allied professions met at the Mayor's parlour, Scarborough, on May 9th, for the purpose of constituting a vocational section. Dr. T. Stephenson, of Edinburgh, interim convener, occupied the chair. It was decided to include registered pharmacists, together with the allied professions of medicine, dentistry, veterinary surgery, and analytical chemistry. Dr. Stephenson was elected chairman for the ensuing year, and Mr. Kenneth McLennan, of Edinburgh, was appointed hon. secretary to the section. An executive was elected, consisting of the chairman, with Major F. Saville Peck (Cambridge) and Sir T. Robinson (Dublin). The first regular meeting of the section will be held in London in July, during the British Pharmaceutical Conference.

"AMBULANCE."—Hitherto the only publication issued by the College of Ambulance has been a small booklet brought out each term. Last month saw the first issue of a new quarterly magazine entitled *Ambulance*, which will supersede the former publication, and is intended to be not only a chronicle of the work of the College, but also a link between all at home and abroad who are interested in the various subjects which may be grouped together as ambulance work in general. Sir James Cantlie contributes an article on the Origin of Ambulance Work; Dr. W. Salisbury Sharpe writes of the Use and Abuse of Tourniquets, and Dr. F. R. G. Heaf of the Tuberculous Patient's Life After the Sanatorium, whilst the "Bookshelf" is arranged by Dr. T. N. Kelynack. Amongst other contents of interest are an article on Pestology by Mr. A. E. Moore, director of the Incorporated Vermin Repression Society; an account of a Sudan cholera camp during Kitchener's Nile campaign of 1896, by Mr. E. F. Knight; and a sketch entitled Medicine Men, by Mr. E. E. Bond, who indicates the value of a knowledge of first aid in an uncivilised and, in this instance, a tropical country, beyond the sphere of qualified medical practice. We wish this new venture a wide success in its work of education towards public health. The magazine is to be obtained only at the College of Ambulance, 56, Queen Anne-street, Cavendish-square, London, W. 1. Annual subscriptions, 2*s.* 6*d.* Single copies, 6*d.*, post free 8*d.*

MEDICAL SOCIETY OF LONDON:
ONE HUNDRED AND FIFTIETH ANNIVERSARY.

THE one hundred and fiftieth anniversary of the founding of the Medical Society of London was celebrated by a dinner at the Hyde Park Hotel on May 15th, the Prince of Wales being the principal guest. Lord Dawson of Penn, President of the Society, occupied the chair, and there were present prominent representatives of the learned, scientific, and artistic professions, including—

The Lord Chief Justice (Lord Hewart), Viscount Astor, Viscount Burnham, Viscount Gladstone, Viscount Knutsford, Lord Kenyon, Lord Riddell, Lord Justice Atkin, Mr. Lloyd George, Mr. Neville Chamberlain, Sir W. M. Abbott-Anderson, Sir T. Clifford Allbutt, Sir Charles Allom, Mr. Donald Armour, Sir Charles Ballance, Sir P. W. Bassett-Smith, the Bishop of Birmingham, Prof. Blair Bell, Sir David Bower, Sir Charlton Briscoe, Sir John F. H. Broadbent, Prof. C. K. Clarke (Toronto), Sir Frank Colyer, Sir Maurice Craig, Sir Anderson Critchett, Prof. E. Emrys-Roberts, Sir Crisp English, Sir Walter Fletcher, Dr. Herbert Morley Fletcher, Sir Robert Fox-Symonds, Sir Archibald Garrod, Lieut.-General Sir John Goodwin, Sir Robert Hadfield, Sir E. Marshall-Hall, K.C., Sir William Hale-White, Sir William Hamer, Surgeon-Vice-Admiral Sir Robert Hill, Sir Arthur Holbrook, Sir Thomas Horder, Sir Robert Jones, Sir Arbuthnot Lane, Sir Arnold Lawson, Major-General Sir William Leishman, Sir John Lynn-Thomas, Sir John MacAlister, Sir Frederick Mott, Mr. C. A. McCurdy, K.C., M.P., Sir George Newman, Sir William Orpen, Sir Charles Parsons, Sir Cooper Perry, Sir Arthur Pinero, Sir Richard Powell, Sir D'Arcy Power, Sir James Purves-Stewart, Sir James Reid, Sir Arthur Robinson, Sir Milsom Rees, Sir Hugh Rigby, Sir Leonard Rogers, Sir Samuel Shead, Sir Charles Sherrington, Lieut.-General Arthur Sloggett, Sir Squire Sprigge, Sir Arthur Stanley, Mr. St. Loe Strachey, Sir Harold Stiles, Sir C. Gordon-Watson, Sir Aston Webb, P.R.A., Sir Dawson Williams, Sir J. Thomson Walker, Sir William de C. Wheeler, Dr. Douglas Webster, Sir Alfred Yarrow, and many other well-known members of the medical and other professions.

The toasts of the King and the Queen, Queen Alexandra, and the other members of the Royal Family having been duly honoured, the PRESIDENT gave the toast of "Our Principal Guest, H.R.H. the Prince of Wales" and in doing so remarked that his Royal Highness followed the traditions of his illustrious ancestors in his interest in medicine both as a branch of learning and as an instrument for promoting the health of the nation. In anything which appertained to the interests of our hospitals and their work they might always rely upon his encouragement and support. That interest owed its strength to an appreciation of the other man's difficulties to a kindly feeling for human frailty—qualities which brought unity and goodwill among men.

The PRINCE OF WALES, in replying, said that it was a common boast among members of the medical profession that they practised the oldest science known to man. It was almost impossible to imagine an age so fortunate as to need no doctors, and probably the only reason why there were no doctors in the Garden of Eden was that Eve obviously knew the familiar prescription, "An apple a day keeps the doctor away." As one who had had a long experience of the kindness of heart characteristic of members of the medical profession, his Royal Highness said he should be ungenerous if he did not feel thoroughly at home in such a company as the present. Nobody who had had as much to do with hospitals, military and civil, as he had could have failed to discover that there was something about the art of healing which had a particularly good effect on those who practised it. Whether in a regimental mess or a ship's ward-

room, whether a hospital man or a general practitioner, the doctor was always a man of many friends. Speaking of the general practitioner, he would like to pay him a special tribute. He was a very devoted, and sometimes unrecognised, friend to the community. On him, in the long run, the health and well-being of the community depended, and in his hands to a great extent lay the honour of the profession as a whole, since for the majority of people he was the only representative of it with whom they came in contact. He, the Prince of Wales, was glad to see present three distinguished physicians from the United States of America. Being one of their fellow guests, he could not welcome them to the gathering, but as a real and sincere friend of America he welcomed them to our country.

The Prince of Wales then proceeded to point out a close connexion between such a Society as that whose one hundred and fiftieth birthday they were celebrating, and the national institution which he was always proud to help to the best of his ability—our national hospital system. The Medical Society was founded in 1773, towards the end of a century in which every branch of thought was growing with almost tropical rapidity. The very fact of its foundation was a proof of the intellectual development of medicine, showing that it was passing from the twilight of quackery into the clear light of science. The progress of medicine always went hand in hand with the development of the hospital system, and just about this same date —the dawn of modern medicine—there sprang up in London a cluster of hospitals whose names were household words to-day—Guy's, St. George's, the London, the Middlesex, Queen Charlotte's, and others. And although that period, 150 years ago, was more remarkable for a series of those purely scientific achievements, without which medicine could not exist, yet throughout its history the growth of the Medical Society of London, and others like it, had moved on parallel lines with the growth of the modern hospital system as we knew it to-day. To most of those who stood outside the temple of medical science, the real significance of what went on inside was only intelligible by the concrete results which that system showed. Medical research was valueless to humanity, unless humanity could benefit practically by it. Brilliant doctors like Lister would have laboured in vain, unless there had been some medium through which the fruits of their labour could be broadcasted, so to speak, to the great mass of the sick and the suffering among the community. The hospitals were such a medium. They are at once universities and the workshops of medical science; the centres to which come both the doctor to get further technical knowledge, and the patient to get his share of its practical application. Without the hospitals, medical science would be, comparatively speaking, a barren thing. Consequently, the value of such a Society as this, from a national point of view, depended very largely on its relationship to the hospital system, and by that the public judged it.

The Medical Society of London owed its origin to the same quickening of interest in the common health which impelled Londoners of the later eighteenth century to enlarge the hospital system. It had grown up alongside it, and had never failed to be to it a loyal and helpful friend. Directly and indirectly, the Society as a whole and its individual members had proved this many times over.

Mr. LLOYD GEORGE proposed the toast "Medicine and the Medical Society of London," coupling with it the name of Lord Dawson. Since the Society was founded there had been very great changes. It was only about 40 years before the founding of the Society that the barber and the surgeon separated. That was a very good indication of the state of medical science before the founding of this great Society. Immediately before that date the art of destroying human life had been perfected by scientific men from generation to generation, but the art of saving life had hardly moved. Science had been called in for destruction; science was regarded almost as an intrusion when it came to the saving of life. Since then there had been almost incredible changes. There had been an age of unlocking the secrets of nature, and no profession had responded more readily to it than the medical profession. There was a time when the human body was like a lamb which is the prey of bandits—roving, skulking in recesses, issuing forth to pillage and to slay with impunity. The strong could resist; the weak invariably fell. Medical science helped; medical science hindered. Even the most expert did not know who the bandits were, where they came from, what they were like, how to deal with them. At last the whole dark continent of disease has been explored. These pirates have been discovered. They have been ticketed, they have been identified, they have been blacklisted, they have been tracked to their lair, and in the majority of cases they are exterminated for the benefit of mankind. More than that, the gathering grounds had been dealt with. It was a great thing that medical science had done; it had given human life a better fighting chance with the odds in its favour as long as the military age, in the medical sense, lasted.

His Royal Highness had referred to the work of the hospitals. One of the greatest tributes ever given to hospitals was given by King Edward VII., who, when Prince of Wales, was seriously ill. Sir William Gull, when he went to him, said: "You, Sir, are as well cared for as if you had been in hospital." The poorest men in the land get that care. The richer may get it, but I have doubts about the classes between. Medical science owed a great deal to hospitals, and it was right to remind the nation of that, at a moment when they are struggling with the adversities following the war, and when they have a heavy burden of debt. But the greatest advance of all in medical science was the advance it had made in preventive medicine. Recent history had taught us that it was a difficult, dangerous, and costly enterprise to expel an invader once he had a grip upon the soil, and that even if we succeed in expelling him, he left behind a devastated area which it took years to repair. That was equally true of human life and the human frame. Preventive medicine put up defences and kept the enemy from attacking and breaking through. The great business men of the world, like the Chinese, knew that it is better to pay your doctor to teach you how not to get ill than to pay him for getting you well. What was true of the individual was equally true of the community, and the great advance, in his judgment, which had been made was in sanitation, in water, in food, in the teaching and inculcation of habit; above all in the housing of the people.

LORD DAWSON, in responding, after referring to the history of the Society of which he was the President, said that medicine was not only based on an increasing range of sciences, but it was permeated by the scientific spirit, and there was an enthusiasm for research to a degree hitherto unknown. Men realised that if they were to do justice to themselves they must ever be weaving the thread of the sciences into the web of their art. Medicine had extended its realm from observation to precise investigation. The greatness of its progress was instanced by our knowledge of infection, immunity, asepsis, hormones, internal secretions, metabolism, and the like, and the conquest of malaria, yellow fever, and other tropical diseases. Further, investigation was organised, its results were collated, and its benefits made available. And here they owed a tribute to the Medical Research Council, the founding of which was due to Mr. Lloyd George. A striking example of a great discovery launched in the right way through the medium of this Council was insulin. Lord Dawson here paid a well-deserved tribute to the achievement of their distinguished colleagues at Toronto, who, by coördination between laboratory and ward, by results tested in selected hospitals in Canada, Great Britain, and the United States, with careful control by the Medical Research Council to secure efficient production, had put before the world a reliable remedy which would

give a considerable control of a fell disease. More than that, new encouragement would thus be given to the patient and never-ceasing endeavour to conquer the mystery of that great scourge cancer, which had so far baffled a multitude of distinguished workers in many countries. Discussing the statesmanship needed if medicine was to bring its gifts to the service of man, Lord Dawson said that medicine, to do its work, required equipment and the resources of special branches of knowledge, such as radiology, bacteriology, chemistry. To bring these advantages within reach of the general practitioner was a pressing problem which must receive all the help possible in its solution. The teaching hospitals were another aspect of the same problem, and their maintenance was a national concern. On them depended not only the future of doctors and nurses, but the setting of a high standard of work. To starve them was to damage the whole nation. The aim of statesmanship for medicine should be organisation along with freedom of thought and that liberty in action without which no science could do its work.

Sir JOHN BLAND-SUTTON, proposing in an amusing speech "Sister Professions and Guests," showed how the medical profession was ancillary to every other profession and the other professions to it. He hoped that the presence of ladies as guests that evening was an augury that during Lord Dawson's régime the barrier which prevented women from being members of the Medical Society would be removed.

Lord HEWART, Lord Chief Justice of England, responded for the Law, and Mr. NEVILLE CHAMBERLAIN, M.P., as Minister of Health. The latter remarked that his department desired to bring the great advances made in medicine and surgery within the reach of all, but new appliances and methods of treatment added to expense, and the problem was how to keep our great institutions fully equipped and abreast of the times without at the same time killing the sources from which magnificent voluntary contributions had come in the past. That problem had not yet been solved, but he was convinced that they would solve it in time.

Appointments.

BUTCHER, T. B., M.R.C.S., L.R.C.P. Lond., has been appointed Civil Surgeon, Muttra, U.P., India.

CARLETON, H. H., M.D., B.Ch. Oxf., M.R.C.P. Lond., Honorary Assistant Physician to the Bristol General Hospital.

CHRISTIE, G. W., F.R.C.S. Edin., Certifying Surgeon under the Factory and Workshop Acts for Ulverston.

CLEGG, S. J., M.D. Manch., D.P.H., Medical Officer of Health for Durban, South Africa.

ELLISON, J., M.B., B.Ch. Camb., F.R.C.S. Edin., Out-patient Surgeon at Chelsea Hospital.

FINCH, E., M.D., M.S. Lond., F.R.C.S. Eng., to a Lectureship in Surgery at the University of Sheffield.

ROBERTSON, J., M.B., M.S. Glasg., D.P.H., M.R.C.P. Edin., F.R.I.P.H. Lond., Medical Officer of Health, School Medical Officer, and Medical Superintendent of Infectious Hospital at Darwen.

WILLOCK, EDITH F., M.B., B.Ch. Dub., B.A.O., D.P.H., Resident Medical Officer, Manchester Babies' Hospital.

Medical Referees under the Workmen's Compensation Act: MARTIN, H. O., L.R.C.P. & S. Edin. (Roxburgh County); ROBARTS, H. H., M.D. Edin. (Haddington County); RENWICK, T. D., L.R.C.P. & S. Edin. (Dunfermline District and Kinross County); DONALD, H. C., M.B., Glasg., F.R.C.S. Edin. (Paisley District); BROADFOOT, J., M.D. Glasg. (Ross and Cromarty (Mainland) and Dingwall and Tain Districts); SUTHERLAND, G., M.B., Ch.B. Edin. (Island of Lewis); MCFARLAN, P. F., M.B. Edin., F.R.C.S. Edin. (Stirling District).

Vacancies.

For further information refer to the advertisement columns.

Aberdeen Royal Mental Hospital.—Senior Asst. P. £400 to £500.
Bethlem Royal Hospital, Lambeth-road, S.E.—Consulting Radiologist. £100 guineas.
Birkenhead and Wirral Children's Hospital.—H.S. £100.
Birkenhead Borough Hospital.—Hon. Radiologist.
Birmingham and Midland Ear and Throat Hospital.—Jun. H.S. £200.
Bradford Royal Eye and Ear Hospital.—Hon. Ophth. S.
Cambridge, Addenbrooke's Hospital.—H.P. £130.
Carmarthenshire Education Committee.—Chief Sch. M.O. £700.
Chelsea Hospital for Women, Arthur-street, S.W.—Registrar. £50. Also H.S. £120.
Chester, Burntwood Sanatorium.—Res. Med. Supt. £900.
Dreadnought Hospital, Greenwich, S.E.—H.S. £150.
Dundee Royal Infirmary.—Asst. Radiologist.
Elizabeth Garrett Anderson Hospital, Euston-road.—H.P., Two H.S.'s, and Obstet. Asst. Each £50.
Folkestone, Royal Victoria Hospital.—Bacteriologist and Path. £50.
Gloucestershire Royal Infirmary.—Asst. S.
Hospital for Sick Children, Great Ormond-street, W.C.—H.S. £50
Hospital for Women, Soho-square, W.—Res. M.O. £100.
King's College Hospital Medical School, Denmark-hill, S.E.—Director of Dental Studies. £400.
Lancaster County Mental Hospital.—Asst. M.O. £590.
Leeds Education Committee.—Asst. Sch. M.O. £500.
Leeds Township Infirmary, Beckett-street.—Asst. M.O. £275.
Leeds University.—Lecturer in Bacteriology. £500.
Leeds, West Riding Asylum, Menston.—Fourth Asst. M.O. £400.
Liverpool, Brownlow Hill Institution.—Asst. Res. M.O. £300.
London County Mental Hospital Service.—Seventh Asst. M.O. £440.
London Lock Hospital, 283, Harrow-road, W.—H.S. £200.
Metropolitan Ear, Nose, and Throat Hospital, 2, Fitzroy-square, W.—Asst. S.
Mildmay Mission Hospital, Austin-street, Bethnal Green, E.—Sen. Res. M.O. £140. Also Jun. Res. M.O. £100.
Mount Vernon Hospital for Tuberculosis.—Surg.-Laryngologist.
Newcastle-upon-Tyne, Royal Victoria Infirmary.—Asst. Radiologist. £400.
Northamptonshire County Council Education Committee.—Asst. School M.O. £500.
North Ronaldshay, Orkney.—Med. Pract. £400.
Queen Mary's Hospital for the East End, E.—Cas. O. £150.
Rochester, St. Bartholomew's Hospital.—H.P. £200.
Royal Waterloo Hospital for Children and Women, Waterloo-road, S.E.—H.S. and H.P. Each £100.
Royal Westminster Hospital, King William-street, Strand, W.C.—Asst. S.
St. Lucia, Victoria Hospital.—Res. S. £500.
St. Marylebone General Dispensary, 30, Marylebone-lane, W.—Hon. P. Also Hon. S. to Ear, Nose, and Throat Dept.
St. Mary's Hospital for Women and Children, Plaistow, E.—Hon. P. and Hon. Asst. P.
Saint Pancras Dispensary, 39, Oakley-square, N.W.—Res. M.O. £225.
Salford Union Infirmary, Hope, Pendleton, near Manchester.—Second Asst. Res. M.O. £250.
Salop County Council.—Asst. M.O. £550.
Sheffield, Jessop Hospital for Women.—Asst. H.S. £100.
Sheffield Royal Infirmary.—H.S. for Ear, Nose, and Throat. £150.
South Shields County Borough Sanatorium.—Asst. Tub. O. £500.
Victoria Hospital for Children, Tite-street, Chelsea, S.W.—Sen. Res. M.O. £250.
Whitehaven and West Cumberland Infirmary.—Res. H.S. £225.
Winchester, Royal Hampshire County Hospital.—H.S. £150.
Windsor, King Edward VII. Hospital.—Sen. H.S. £200. Also Jun. H.S. £150.
Wolverhampton and Staffordshire General Hospital.—Res. Cas. S. £250.
Worcester General Infirmary.—Res. M.O. £200.

The Chief Inspector of Factories, Home Office, London, S.W., announces the following vacant appointments: Brentford and Ealing (Middlesex) and Sidmouth (Devon).

Births, Marriages, and Deaths.

BIRTHS.

DAVIES.—On May 8th, at Charlemont, Oakcroft-road, Blackheath, the wife of Dr. Arthur Davies, of a daughter.

DOUTHWAITE.—On May 10th, at Wigmore-street, W., the wife of Dr. A. H. Douthwaite, of a son.

MAYER.—On May 13th, at Thames Ditton, the wife of J. W. Mayer, M.C., L.D.S. Eng., of a daughter.

O'BRIEN.—On May 9th, at 16, Rothesay-terrace, Edinburgh, the wife of A. J. R. O'Brien, M.C., West African Medical Service, of a son.

SACKS.—On April 15th, at 13, New-road, E., the wife of Dr. Samuel Sacks (Muriel Elsie Landau, M.D. Lond., F.R.C.S. Eng.), of a son.

DEATHS.

COLLIER.—On May 10th, at Bonnie Brae, Hyde-road, Paignton, South Devon, Hopetoun Currie Collier, Brigade-Surgeon Lieut.-Colonel, aged 82 years.

KNIGHT.—On May 7th, at West Norfolk and King's Lynn Hospital, following an operation, Frederick Charles Rienzi Malins Knight, M.R.C.S., L.R.C.P., of Watlington, Norfolk (late of Claremont-square, London, N.).

STYLE.—On May 14th, at Queen-street, Mayfair, Mark Style, M.R.C.S., L.R.C.P., J.P., late of White House, Moreton-in-Marsh, aged 61.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Medical Diary.

Information to be included in this column should reach us in proper form on Tuesday, and cannot appear if it reaches us later than the first post on Wednesday morning.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

MEETINGS OF SECTIONS.

Friday, May 25th.

STUDY OF DISEASE IN CHILDREN: at 5 P.M. (Cases at 4.30 P.M.)
Annual General Meeting:
Election of Officers and Council for 1923–24.
Discussion: on Birth Injuries.
Cases will be shown.

NEUROLOGY; ORTHOPÆDICS.
Members of these Sections are cordially invited to attend, and it is hoped they will coöperate by showing cases and joining in the Discussion.

EPIDEMIOLOGY AND STATE MEDICINE: at 8 P.M.
Annual General Meeting:
Election of Officers and Council for 1923–24.
Paper:
Prof. E. L. Collis: An Inquiry into the Mortality of Coal and Metalliferous Miners in England and Wales.

UNIVERSITY OF LONDON ADVANCED LECTURE IN PSYCHIATRY, in the Barnes Hall, Royal Society of Medicine, Wimpole-street.
THURSDAY, May 24th.—5.15 P.M., Prof. E. D. Wiersma (Groningen): The Psychology of Epilepsy.

MEDICAL SOCIETY FOR THE STUDY OF VENEREAL DISEASES, 11, Chandos-street, Cavendish-square, W.
FRIDAY, May 25th.—8.30 P.M., General Meeting. Sir Thomas Horder: Introductory address on Metastatic Gonorrhœa. Sir Wm. Willcox: Gonococcal Arthritis. To be followed by a discussion.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

WEST LONDON POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.
MONDAY, May 21st.—12 noon, Mr. Simmonds: Applied Anatomy. 2.30 P.M., Dr. Saunders: Medical Wards. 3 P.M., Mr. Simson: Diseases of Women.
TUESDAY.—10 A.M., Mr. Steadman: Dental Department. 12 noon, Dr. Burrell: Chest Cases. 2.30 P.M., Dr. Pritchard: Medical Wards.
WEDNESDAY.—10 A.M., Mr. Banks-Davis: Operations on Nose, Throat, and Ear. 2 P.M., Dr. Burnford: Medical Wards. 2.30 P.M., Mr. Donald Armour: Surgical Wards.
THURSDAY.—10 A.M., Dr. Grainger Stewart: Neurological Department. 2 P.M., Mr. MacDonald: Genito-Urinary Department. 2 P.M., Mr. Bishop Harman: Eye Department.
FRIDAY.—11 A.M., Mr. McDougal: Electrical Department. 2 P.M., Dr. Burrell: Medical Out-patients. 3 P.M., Mr. Sinclair: Surgical Out-patients.
SATURDAY.—9.30 A.M., Dr. Burnford: Bacterial Therapy. 10 A.M., Dr. Saunders: Medical Diseases of Children. 10 A.M., Mr. Banks-Davis: Operations on Throat, Nose, and Ear.
Daily, 10 A.M. to 6 P.M., Saturdays, 10 A.M. to 1 P.M., In-patients, Out-patients, Operations, Special Departments.

SOUTH-WEST LONDON POST-GRADUATE ASSOCIATION, St. James's Hospital, Ouseley-road, Balham, S.W.
FRIDAY, May 25th.—4.30 P.M., Dr. H. W. Barber: Demonstration of Dermatological Cases.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.
Demonstration of Clinical Cases at 3.30 P.M.
MONDAY, May 21st.—Mr. J. Bright Banister: Gynæcological.
TUESDAY.—Dr. J. Metcalfe: Radiological.
WEDNESDAY.—Mr. C. H. Hayton: Throat and Nose.
THURSDAY.—Dr. Yealland: Medical.
FRIDAY.—Mr. E. Gillespie: Surgical.

NATIONAL HOSPITAL FOR DISEASES OF THE HEART, Westmoreland-street, Marylebone, W.
THURSDAY, May 24th.—5.30 P.M., Dr. J. Strickland Goodall: The Heart in Relation to Thyrotoxicosis.

INSTITUTE OF PATHOLOGY AND RESEARCH, St. Mary's Hospital, Paddington, W.
THURSDAY, May 24th.—4.30 P.M., Dr. Bernard Hart: The Development of Psycho-pathology as a Branch of Medicine.

LONDON SCHOOL OF MEDICINE FOR WOMEN, 8, Hunter-street, W.C.
TUESDAY, May 22nd.—5 P.M., Prof. A. L. McIlroy: Heart and Lung Complication in Pregnancy.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, W.C.
THURSDAY, May 24th.—4 P.M., Dr. Poynton: Prevention of Heart Disease in the Young.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen-square, Bloomsbury, W.C. 1.
POST-GRADUATE COURSE: MAY–JUNE, 1923.
CLINICAL LECTURES AND DEMONSTRATIONS.
TUESDAY, May 22nd.—2 P.M., Out-patient Clinic: Dr. Grainger Stewart. 3.30 P.M., Syphilitic Disease of Nervous System: Dr. Adie.
THURSDAY, May 24th.—2 P.M., Out-patient Clinic: Dr. Kinnier Wilson. 3.30 P.M., Focal Disease in the Medulla: Dr. Gordon Holmes.
FRIDAY, May 25th.—2 P.M., Out-patient Clinic: Dr. Gordon Holmes. 3.30 P.M., Vascular Disease in the Nervous System: Dr. Collier.
A COURSE of 12 LECTURES on the ANATOMY AND PHYSIOLOGY OF THE NERVOUS SYSTEM will be given at 12 noon on TUESDAYS and FRIDAYS if there are sufficient entries for it.
Mr. Armour and Mr. Sargent operate at the Hospital on Tuesday and Friday mornings at 9 A.M., or at such other times as may be announced.
The fee for the whole Course is £12 12*s.*, including Anatomy and Physiology, but these Lectures may be taken separately for a fee of £4 4*s.* The fee for the Course without Anatomy and Physiology Lectures is £10 10*s.* Special arrangements as to fees will be made for those unable to take the whole Course. Fees should be paid to the Secretary of the Hospital at the office on entering for the Course.
C. M. HINDS HOWELL, Dean of Medical School.

LONDON LOCK HOSPITAL, 91, Dean-street, W. 1.
TUESDAY, May 22nd.—2.30 P.M., Mr. J. E. R. McDonagh: Clinical Demonstration with Exhibition of Paintings.
THURSDAY.—2.30 P.M., Mr. W. Victor Corbett: Interpretations of the Wassermann Reaction. 4.30 P.M., Mr. Lawrence Abel: Some Complications of Gonorrhœa in the Male.
FRIDAY.—4 P.M., Mr. Johnston Abraham: Syphilis in Women.
At 283, Harrow-road, W. 9.
WEDNESDAY, May 23rd.—3 P.M., Mr. Ernest Lane: Treatment of Syphilis by Trepol, the Arsenical Compounds, and Intravenous Cyanide of Mercury.

LONDON HOSPITAL MEDICAL COLLEGE, Mile End, E.
TUESDAY, May 22nd.—5.15 P.M., Dr. Millais Culpin: Symptomatology (2).
WEDNESDAY.—4.15 P.M., Dr. W. M. Feldman: Embryonic Physiology.
FRIDAY.—4.15 P.M., Mr. Russell Howard: (Lecture on Surgery) The Testicle. 5.15 P.M., Dr. Millais Culpin: Diagnosis.

INFANTS HOSPITAL, Vincent-square, S.W. 1.
WEDNESDAY, May 23rd.—8.45 P.M., Dr. Helen Mackay: The Treatment of Nutritional Disorders of Infancy.
THURSDAY.—6 P.M., Dr. Eric Pritchard: The Physiology and Pathology of Nutritional Disorders.

QUEEN CHARLOTTE'S LYING-IN HOSPITAL, Marylebone-road, N.W.
THURSDAY, May 24th.—5 P.M., Mr. A. W. Bourne: Puerperal Pyrexia.

SALFORD ROYAL HOSPITAL.
THURSDAY, May 24th.—4.30 P.M., Mr. Ollerenshaw: Demonstration of Orthopædic Cases in the Wards.

UNIVERSITY OF BRISTOL POST-GRADUATE DEMONSTRATIONS (in the Medical Theatre).
THURSDAY, May 24th.—3.30 P.M., Dr. J. R. Charles: Hysteria, Signs, Differential Diagnosis, Treatment.

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Notes, Comments, and Abstracts.

THE EVOLUTION OF THE MODERN TREATMENT OF SEPTIC PERITONITIS.[1]

BY H. W. CARSON, F.R.C.S. ENG.,
SENIOR SURGEON, PRINCE OF WALES'S GENERAL HOSPITAL.

IT may seem curious that I should have chosen the history of peritonitis to honour a man who was not much interested in the study of the past and in whose day peritonitis was little understood. But John Hunter's views on peritonitis, like his views on so many things, were ahead of his time. He says: "That the inflammation of the peritoneum rises from the stimulus of imperfection is also evident, because if a man is wounded in the belly with a sword, which has also wounded one of the intestines, if the wound in the abdomen is closed and unites by first intention, the wound in the intestine will unite with some parts with which it comes in contact, either by extravasated blood or the adhesive inflammation, and no further trouble will ensue, because the stimulus of imperfection has not been given. But if a man is wounded in the belly and there is no wound of the viscera, yet if the wound is kept from healing by first intention, the whole peritoneum becomes inflamed immediately—not from the spreading of inflammation by the continuity of surface, but the consciousness of imperfection in the membrane itself by which the whole is brought into the same action."

And again he says: "The inflammation may be a true inflammation or the erysipelatous. At first the apparent indication would be bleeding and that largely; but if it is of the erysipelatous kind, we may be led by these symptoms beyond the quantity suitable to the constitution; yet I do not know what we can do better. I should be inclined to reduce the patient to the lowest pitch rather than allow suppuration to take place, for that would certainly kill. *How far in such cases it might appear desirable to make an opening into the abdomen and throw in warm water repeatedly to wash away the matter, I will not undertake at present to determine.*"

He also recognised puerperal fever as a true peritonitis, a conclusion that preceded the work of Bichat by some 30 years.

The "Iliac Passion."

There is little direct evidence to be obtained from prehistoric sources. The ancient Egyptians, as you know, deposited the internal organs of the dead in four canopic jars, but Prof. Elliot Smith and Prof. Wood Jones in their "Archæological Survey of Nubia" could only report one case of adhesions due to old peritonitis, and that not even in a jar, but in the pelvis of a woman buried in the cemetery No. 2 on Hesa. There is nothing in the Ebers papyrus 1500 B.C.) on acute abdominal disorders, but in the fragmentary tablets of the library of Assur-Bani-Pal, at Nineveh (600 B.C.), there are instructions for treating colic. It is certain that abdominal disorders were well known in Egypt, for Herodotus states that medicine was practised upon a plan of separation—thus "Some cure diseases of the eye, others of the head, others again of the teeth, others of the intestines." There is in the Wellcome Museum an excellent specimen of a clay votive offering found on the banks of the Tiber by Mr. Thomson, who very kindly demonstrated it to me. It looks exactly like the post-mortem appearances of the abdominal cavity of a patient dead of diffuse peritonitis and is life size. Mr. Thomson dates it about A.D. 200.

It can be well understood that in early mediæval times, when there were no post-mortems and symptoms were more important than signs, a good deal of mystery attached to any sudden, severe, painful, and fatal illness, such as is seen in peritonitis, obstruction, appendicitis, or perforation; and when the victim was a personage of importance all sorts of whispers of foul play would be current. William the Conqueror possibly died of peritonitis following a rupture of the intestine; Henry I. had a mysterious abdominal seizure, which is generally believed to be ptomaine poisoning; John died after an unwise meal of peaches. Stephen's death seems to have been due to what was then known as the "iliac passion." What exactly was comprehended under the name of "passio iliaca" is unknown; but it seems to approach nearly to the dreadful modernism—"the acute abdomen," and to include peritonitis, intestinal obstruction, and even strangulated hernia. It was also known as "ileus" and "miserere." John of Gaddesden in the Rosa Anglica, 1314, differentiates between the iliac passion, which is probably peritonitis, the colic passion, which may be intestinal obstruction, and the renal passion, and speaks of the iliac passion as being accompanied by frequent vomiting, by hardness of the belly, and by extremely acute pain, as if a gimlet were boring through the intestine. Fomentations and enemata were the chief means of treatment. Praxagoras of Cos, 100 B.C., bravely treated the vomiting by giving emetics until fæculent vomiting occurred.

Little advance was made until the seventeenth century, when Thomas Willis (1621–75) described puerperal fever, and in an account of the colic passion disagreed with the theory advanced about that time, that it was to be counted among the distempers of the brain and nervous stock. He says: "The intestines enter into pains and torments, being irritated by wind, medicines, choler and perhaps other humours contained within their cavities; but if it were so, those things which loosen the belly should give certain ease, the contrary of which often happens—to wit by some more violent or often purging, when the disease has grown worse." It is interesting to find this great truth, of which we have only recently been convinced, being enunciated 250 years ago.

Early in the eighteenth century Haguenal gave a very interesting account of peristalsis and antiperistalsis in the iliac passion. In 1759, Heister reported the first case of appendix abscess, which he discovered in 1711, when doing a post-mortem on a malefactor, in the public theatre of Altdorf.

This was followed in 1759 by the historic case of Mestivier, who reported a case of appendicitis occurring in a man of 45, who came to the Hôpital St. André de Bordeaux with a large abscess in the right iliac fossa. One pint of offensive pus was removed by incision and on post-mortem a pin was found in the appendix. A few other cases were reported in France about this time, and in 1812 Parkinson, a pupil of John Hunter, reported the first case in England. The last mention of the iliac passion as such was made by Sydenham in 1788. He describes two forms—the obstructive and the irritative—and says that the true iliac passion is the second. He says the method of curing it had hitherto remained a secret, "notwithstanding the pretension of such as had recourse to quicksilver and leaden bullets, which do little service and are frequently very dangerous." He recommends that the salts of wormwood with a spoonful of lemon-juice be taken morning and night and that in the intervals some spoonfuls of mint water by itself should be given twice every hour. "At the same time, I order a live puppy to be applied to the belly until the purgative is given two or three days afterwards." This period is closed by Erasmus Darwin in his Zoonomia, 1796, under the heading of "invertentia." He says: "If the vomiting continues after the pain ceases, and especially if the bowels become tumid with air, which sounds on being struck with the finger, these patients seldom recover."

Puerperal Fever.

As regards the generally accepted treatment for peritonitis at the beginning of the nineteenth century, Benjamin Travers and Thomas Sutton, writing in 1812 and 1813 respectively, considered that the treatment consisted in absolute rest, purgatives—especially magnesium sulphate—abstention from food, cold applied to the abdomen, bloodletting in acute cases, and opium only occasionally and very sparingly. Of puerperal fever, Dr. Sutton said: "I have never had the happiness to discover anything in the shape of a remedy for this cruel disorder excepting copious bloodletting."

A great deal of attention now began to be given to puerperal fever. John Hunter tells the story of "a man whom I tapped at the hospital and died on the third day. I said he died of puerperal fever. This was smiled at in the hospital and some were pleasant in remarking on the curiosity of a man being delivered; but a few months afterwards, another having the same fate, I convinced them by dissection that he had died of suppuration of the peritoneum, which we must admit to happen in puerperal fever." The greatest advance was made by John Hunter's friend and fellow student, Charles White of Manchester, 1728–1813, who wrote his first treatise in 1773 on "The Management of Pregnant and Lying-in Women," nearly 90 years before Semmelweiss, to whom so much credit has been given. White held that puerperal fever was a putrid fever, dependent on retained lochia and dirty surroundings. He advised the sitting up of the patient after delivery, getting up on the second or third day, and antiseptic injections into the uterus if the lochia became acrid or putrid. He says that as the puerperal fever does not appear till after delivery, so neither does absorption of matter from an abscess till it be opened and the air have access. "We may, I think, conclude that the absorption of matter is the immediate cause of the puerperal fever, as well as that consequent upon abscesses and ulcers." White was a great believer in fresh air and gave minute instructions as to the ventilation

[1] Abstract of the annual oration of the Hunterian Society, delivered on March 19th, 1923.

of the wards. He washed his hands in chloride of lime solution, fumed the apartment with brimstone after a patient had had the disease, cleaned the floor and woodwork with vinegar, and had all the linen and curtains washed. His principles were adopted by Robert Collins, Master of the Rotunda Hospital, Dublin, 1826–33, who, finding puerperal fever rampant, adopted in 1829 a very drastic method of cleansing the wards, filling them with chlorine gas, and covering floors and woodwork with chloride of lime cream. He stoved the bed-linen at 120–130° F., and during four years did not lose a single case from puerperal fever.

Peritonitis as an Entity.

In 1802 Bichat, a young surgeon in the French Revolution, did his great work on peritonitis, and he was soon followed by Laennec. They both insisted that peritonitis was an entity, in contradistinction to the generally accepted view that all abdominal inflammations were infections of various organs, such as gastritis and enteritis, and this was further developed by Bichat's pupil, Gasc.

Attention now began to be paid to the possibility of operating for appendicitis, but progress was stopped by the result of an unfortunate case. In 1827 a French medical man, Melier by name, diagnosed a case as an abscess due to a recurrent appendicitis. He called in Dupuytren to operate. Dupuytren, although not enthusiastic, agreed to do so, and opened the abscess; a sinus resulted, and some months afterwards the patient died from the bursting of a residual pelvic abscess into the peritoneal cavity. This confirmed Dupuytren in his opinion that operation should not be done on those cases; he was the leading surgeon in France, his opinion was always quoted, and the progress of operation for appendicitis was put back—in France at any rate, and also, I think, in England—about 30 years. Dupuytren discusses on several occasions the reasons why swellings occur in the right iliac fossa rather than in the left, and concludes "that the cæcum offers at its point of union with the small intestine a narrowing, so marked, that at this place, the ileo-cæcal valve, one often sees collect many foreign bodies, which could themselves cause this abscess. The left side is quite different and does not show any narrowing. On the right side the fæculent material had to circulate against the law of gravity." This view was generally adopted, so that typhlitis and typhlo-enteritis were more often spoken of than appendicitis. Husson and Dance, colleagues of Dupuytren at the Hôtel Dieu in Paris, and Ferrall, in Edinburgh, held this view very strongly; but Dr. John Burne, of the Westminster Hospital, in a paper read before the Medico-Chirurgical Society in 1836, reports several cases of appendicitis proved at post mortem, and suggests that an incision should be made "when a lump, emphysematous in character, approaches the surface." He draws a very definite distinction between typhlo-enteritis and perforative ulceration of the appendix based on their symptomatology, typhlo-enteritis being cured by aperients, while the symptoms persist if the appendix is at fault. He considers that there are four causes for inflammatory tumours in the right iliac fossa, placing them in the following order of frequency: (1) typhlo-enteritis; (2) perforative appendicitis and peritonitis; (3) perforative ulceration of the cæcum from within, with abscess behind the peritoneum (comparatively rare); (4) inflammation of the appendix (very rare—only one case had come under his notice).

Dr. James Copland, of the Orkney Islands, in his "Dictionary of Practical Medicine" (1844), considered appendicitis more dangerous than typhlitis and is strongly opposed to aperients, "as they cause ileus to follow." Grabowski, of Poland, in 1836, called attention to the occurrence of a quiescent period in acute peritonitis, but he does not recommend operation. However, ten years later Jobert and Guerin recommended opening the abdomen and washing out the peritoneal cavity with water at blood heat until it returns clear. By this time (1846) anæsthesia was introduced and this gave a tremendous impetus to surgery. Not only were the ordinary operations now done easily and methodically, but it became possible to do many operations, and among them some abdominal operations, which were formerly not even contemplated. But antisepsis and asepsis were not yet—or no longer—practised. Surgeons operated in dirty coats with dirty hands; the instruments were not clean; sponges were dreadful; the sanitary conditions of the hospitals were beyond description, and the mortality was frightful. In the midst of this saturnalia, Syme, of Edinburgh, made personal cleanliness a cult. Without knowledge of bacteriology, for Pasteur had yet to reveal his secret; without any knowledge of antiseptics, for his brilliant son-in-law, Lister, was yet to do his work (Lister's first article on antiseptics was published in THE LANCET in 1867[2]), he achieved by simple cleanliness results which were for that period amazing. Unfortunately Syme took up a strong stand against abdominal surgery.

[2] THE LANCET, 1867, i., 326.

To illustrate the casual manner of the surgeon of that time, a story is told of Sir Astley Cooper, who removed a wen from the scalp of King George IV. On going to see his illustrious patient next morning, very nervous as to the result of the operation, he was rather coldly received. When he got home, he inquired of his nephew why this should be. The nephew pointed to the fact that his cravat, shirt, and hands were bespattered with blood. "God bless me, but I was not aware of it," said Cooper, "and the King, Sir, is so very particular!"

A very illuminating medical view on intestinal obstruction is seen in the lecture by Dr. Brinton, physician to the Royal Free Hospital, delivered in 1859. He says: "Our wonder at the happy audacity of the operator is unaccompanied by any wish or hope of imitating his procedure. That the operation may succeed, there is scarcely any need of these cases to inform us; that it is justifiable is a conclusion which, even supposing them to record failures and successes with rigid impartiality, they would be utterly incapable of establishing. The question 'Is gastrotomy justifiable in intestinal obstruction?' must be answered with a decided negative. In intussusception an operation ought not to be mooted." He goes on to make the amazing statement that 30–40 per cent. of all intussusceptions recover by casting off the intussuscepted part. He says that operation should be confined to obstruction by bands and twists and should always be preceded by medical treatment, which may cure.

Lister.

In February, 1860, Lister obtained an appointment at Glasgow and had full charge of wards in the infirmary in 1861. He had done much work by that time on inflammation, and introduced into his practice in Glasgow the most scrupulous cleanliness, really an elaboration of Syme's methods; but the secret eluded him, until he read in the early part of 1865 Pasteur's papers on putrefaction, which had appeared in the "Comptes Rendus Hebdomadaires" during 1863. In March, 1865, he made his first antiseptic treatment with crude carbolic acid in a case of compound fracture of the leg. The patient, a poor surgical risk, died. His second case, a healthy boy of 11, whose leg was crushed by a cart-wheel, was successful. Soon after, in 1869, Lister left Glasgow to succeed Syme in Edinburgh and was able to say that he had had "three years of immunity from the ordinary evils of surgical hospitals" in spite of great sanitary disadvantages.

But now a determined effort was made to improve hospital treatment, and Sir James Young Simpson, in 1869, published statistics of the results of amputation. Of 2089 results of hospital amputation 40 per cent. died; of 2098 country amputations, 11 per cent. died. This paper made a great stir, and a meeting was held at Leeds to consider these statistics, with the result that the hospitals were vindicated.

Abdominal Operation in the Second Half of the Nineteenth Century.

Now, how do matters stand with regard to peritonitis? We have seen the period initiated by Bichat, when peritonitis was recognised as an entity. In a second period, 1825–43, the causes of peritonitis were studied, particularly tuberculous peritonitis and puerperal fever. In the third period, 1850–80, partial peritonitis was discussed; as, for instance, pelvic peritonitis by Bernutz and subphrenic abscess by Foix. The fourth period was concerned with bacteriology. It is interesting to see what the hospitals were doing in abdominal work during this period. I had before me the Guy's Hospital Reports for the seven years 1854–60, edited by Dr. Fagge. During that time 54 abdominal operations were done and 33 died; 44 of these operations were ovariotomies, of which 23 died. Twenty years later, at St. Bartholomew's Hospital in the six years 1874–79, abdominal operations were confined to colostomies and ovariotomies. Of the 11 colostomies 9 died; of the 26 ovariotomies 11 died. At this time a separate record was made of all cases of pyæmia admitted to or arising during treatment at the hospital.

We now read for the first time accounts of peritonitis occurring after an abdominal operation. In 1867 Koeberlé, the Alsatian surgeon, who introduced hysterectomy, advised that if a fluid extravasation followed an inflammatory process in the peritoneum, it is necessary to open the peritoneal cavity without delay. He records a successful case after ovariotomy and he thought the fluid harmful because of the neighbouring fæcal matter in the intestine. Netter advanced his "coryza" theory, saying that the first fluid secreted in peritonitis was entirely irritant, and compared it to the fluid in coryza, which causes erosions of the nostrils and lips. He advised irrigation and made the ingenious suggestion that if the exudation is abundant, it is more dilute and less irritating, and the prognosis therefore better. Both Burdon-Sanderson, in 1876, and Mosiman, in

1881, produced peritonitis experimentally in animals by injections of various substances. Then followed a host of writers on the bacteriology of peritonitis. Pasteur discovered streptococci in puerperal fever in 1878–79. Metchnikoff, in 1884, described phagocytosis; Leyden, in 1884, and Winkel, in 1886, proved that the micro-organism in puerperal fever and erysipelas was the same. In 1885 Cornil and Babès described an organism found in perforative peritonitis, causing gas and derived from the intestine. This was named by Escherisch in 1886 the *Bacillus coli communis*. Tavel and Lanz, in their much quoted account of the bacteriology of peritonitis (1893), described many different varieties. They dealt chiefly with appendicitis, and though they realised that the *Bacillus coli communis* was often present, they took the view that an anaerobic organism played the most important part.

Operative treatment, however, did not advance very rapidly and we find Mickulicz, Billroth's assistant, in 1886, saying in speaking of laparotomy: "It has not yet the favour of the medical public accustomed to employ only medical means; but it has been followed by results so marvellous in the most desperate cases, that one must consider it as the treatment of the future in peritonitis." In 1886 Lawson Tait, lecturing on the results of 139 consecutive ovariotomies without a death, says: "This success has absolutely destroyed our fear of the peritoneum and has justified our opening that sacred sac very much as we open our pockets." He introduced his technique in 1875, filling the abdomen with blood-warm water and washing all organs, repeating till the water comes off clear. "The water has not been boiled and contains no drug or chemical substance. The water is plain, unfiltered tap water, warmed by the addition of enough from the boiler. All opiates are forbidden in my practice, unless they are required to ease a dying patient out of the world."

"I have never said," remarked Lawson Tait in 1892, "that the purgative treatment will cure peritonitis; for peritonitis, once it is completely established, is practically an incurable disease and almost always uniformly fatal—but when it is completely established I do not know." Lawson Tait did 4000 abdominal sections and undoubtedly proved that the abdomen could be opened safely. He followed a system of crude asepsis and would have nothing to do with Lister and his methods.

In 1888 Mr. J. D. Malcolm described for the first time the condition now known as pseudo-ileus. Speaking before the Pathological Society on "Sequelæ of Laparotomy," he says: "In all cases the nervous plexuses of the intestine are more or less affected, their activity being first increased and afterwards paralysed in proportion to the severity and duration of the stimulus. The paralysed condition usually passes off in a few hours, but there is evidence that the bowel is distinctly wanting in power for from four to six days after operation." This was a great discovery and paved the way for further investigation and treatment of the condition, which still causes anxiety and the treatment of which is still a matter for debate.

The next important pronouncement came from Sir Frederick Treves in 1891, in his Lettsomian lectures on peritonitis. He mentioned that the chief organism was *B. coli communis*, while *Streptococcus pyogenes* was the common cause of post-operative peritonitis. His treatment consisted at that time of rest in the recumbent position, very little fluid by mouth, and warm water by rectum rather than nutrient enemata. If peritonitis is established, aperients are of no value; but he differentiates between this condition and perityphlitis, in which aperients are very valuable, very much like Dr. Burne in 1836. He was also in favour of blood-letting, which, he says, may with advantage be more extensively employed. His operative measures consisted of opening localised abscesses, and drainage without irrigation; in generalised peritonitis irrigation should be employed, using normal saline solution, if dry sponging is not successful in cleansing the cavity. In perforation cases he did not advise a long search for the cause, and considered that if the operator can rid the serous cavity of the effects of the perforation he may very often leave the breach itself to be dealt with by natural means. In these cases he dusted the serous membrane liberally with iodoform, except in children, and did not drain except by strips of gauze passed among the coils of the intestine. He did not drain the pelvis, but passed a rubber tube "into the midst of the area which is most disturbed." As for the use of morphia, he says: "Morphia should never become a feature in the routine cure of peritonitis. It masks the symptoms, hinders the natural process of cure, and hampers treatment." I think this view fairly represents the treatment of peritonitis 30 years ago.

The Twentieth Century.

Perhaps the most important work on the bacteriology of peritonitis was published in 1905 by Dudgeon and Sargent. After going very thoroughly into the types of bacteria commonly found, they discuss very briefly points in technique and treatment, such as flushing the abdomen and drainage, and particularly do they advise against the use of morphia, which they say "superadded to the toxic paresis of the bowel may just turn the balance against recovery." They held that the post-operative pyrexia in ruptured tubal pregnancy was due to *Staphylococcus albus* and not to any hypothetical toxic substance produced by coagulation of blood; that the colon bacillus is the most important, the most common, and not infrequently the most virulent of the organisms which are known to cause peritonitis. At the same time they proved that the *Staphylococcus albus* had a protective function in causing phagocytosis.

In 1895 Moscatello, of Turin, had made the important discovery that absorption from the peritoneal cavity took place especially through the diaphragmatic peritoneum and that there was a lymph flow towards the diaphragm independent of gravity. This was the foundation for the great work done by J. B. Murphy in the treatment of peritonitis. It is not perhaps too much to say that his announcement at the British Medical Association meeting in Toronto in 1906 revolutionised the whole treatment of peritonitis. He recommended the sitting-up position, the administration of saline by the continuous drip method into the rectum, combined with drainage of the peritoneal cavity and the administration of aperients. I had the good fortune to hear this lecture; on returning to London I at once put his technique into operation, with the result that my death-rate in diffuse peritonitis fell 20 per cent. forthwith. Thousands of lives must have been saved by this device alone and general peritonitis lost half its terrors.

I will not weary you by referring to the many investigations which have taken place since that time. It is perhaps enough to draw your attention to the work on the causes of death in intestinal obstruction, to the bacteriological examination of the exudate as a means of prognosis, and to the rival method to Murphy's method of treating peritonitis, which one might call the "passive" as distinguished from the "active" method. About 12 months ago I addressed an inquiry to all the principal hospitals in Great Britain, asking for an account of the method adopted in the treatment of peritonitis. It was clear from the replies I received that on such questions as active or passive treatment opinion is widely divided. But all are agreed in condemning irrigation, and there is an increasing tide of opinion in favour of immediate closure of the peritoneal cavity instead of drainage.

We are still almost too close to the great advances of the last few years to estimate their value. I was myself house surgeon to Hooper May, one of Syme's dressers, and when I first entered the wards of St. Bartholomew's Hospital little abdominal surgery was done. In 1890 only 27 abdominal sections were performed, 9 of which were colostomies, and of the 27, 18 died. In 1891 51 laparotomies were done, of which 25 were colostomies, and of these 51, 19 died. I believe the first gastro-enterostomy was done there in that year, and also a cholecystotomy—both without success. We irreverent students used to speak of emergency laparotomies as the coup de grâce. I have performed hysterectomy with the serre-nœud and have washed out many an abdomen with antiseptic lotions. But these are vain regrets!

There is still much to be done, for though we now feel confident that peritonitis will not follow a clean laparotomy, our mortality is still too high in septic peritonitis, but we are ever hoping that with increased knowledge will come the demand for earlier treatment, in which alone safety lies.

COLOUR AND SEXUALITY.

THE connexion, says Scheuer,[1] between coloration and sexual selection was established by the Darwinian school, and the same holds good even as regards man himself. Sudermann has remarked that from the bird of paradise and the peacock, up to the Hussar lieutenant, we see the eternal masculine arrayed in the brightest colours. The attraction of military and other uniforms for women is universal, and male inverts as a class resemble them in this respect. There is a tendency for military uniform to be the brighter, the higher the rank of the wearer. This is so even in the inconspicuous garb of the modern service uniform, since red tabs distinguish a staff officer. Technically speaking, women have a certain "uniform fetichism"; and just as fetichism is closely bound up with anti-fetichism, so cases have been known of the brides of soldiers and sailors taking an aversion to their husbands when these came home from active service and appeared in civilian clothes. Feminine fondness of the gaudy colours of the uniform is really a primitive trait, for in primitive peoples it is the male, not as with us the female, that is the more adorned. Savage men, says Westermarck, paint and tattoo themselves largely as a sexual attraction, beginning at the

[1] O. F. Scheuer: Zeitschrift für Sexualwissenschaft, April, 1923.

age of puberty, and treating especially those parts of the body which are exposed to view. Waitz records the answer of some uncivilised men to a question why they tattooed themselves—"For the same reason that you dress yourself, to attract the women." Civilisation has here reversed the rôles of the sexes, because with civilisation marriage becomes difficult for women. The author thinks Sudermann correct in his contention that, face to face with the risk of dying an old maid, civilised woman adopts the sexual lure of adornment, especially the adornment of colour. This phenomenon is seen most plainly in the prostitute, that product of civilisation, with her rouge and dye and powder. In warm climates artificial colouring may be applied to other parts of the body than the head and face; the Creole women of Caracas, for instance, rouge their bosoms, whilst in the East the nails of both fingers and toes are stained red with henna. It is said that some modern civilised women have had sound teeth filled with gold, merely in order to increase their attractiveness. Another instance of the association of colour with sexuality is the admiration of white races for whiteness of female complexion. Heine's poems are full of allusions to "lily-white fingers," or a small white hand, or snow-white shoulders. This is probably because the female in fair races is even less pigmented than the male. However, there is a certain attraction by contrast too. The blonde Schopenhauer, according to his own account, attracted brunettes. For this reason women easily fall in love with foreigners, even those of lower race, or those who are their conventional enemies—e.g., war prisoners or troops of occupation.

COLONIAL HEALTH REPORTS.

St. Lucia.

According to the census taken in April, 1921, the population of St. Lucia consisted of 51,505 persons—23,506 males and 27,999 females. These figures, compared with those of the census of 1911, show an increase of nearly 6 per cent. for the decennial period. There were 93 Europeans, of whom 52 were born in the United Kingdom. The birth-rate and the death-rate in 1921 were respectively 37·2 and 21·8 per 1000 of the total population. The principal hospital of the colony—the Victoria—is located within half a mile of Castries; the staff consists of a resident surgeon in charge, with a European nurse matron, assisted by a good class of native nurses. The number of patients admitted during 1921 was 1575, of whom 1006 were discharged cured and 133 relieved, while 111 died; 327 surgical operations were performed. Owing to the low salaries provided, difficulty has been experienced in obtaining the services of qualified men to fill vacancies on the medical staff of the colony. It is recognised that when the colony's finances will permit the emoluments of the medical officers must be increased. The International Health Commission continued their operations during the year over a considerable area. If effective sanitation can be maintained this philanthropic campaign should prove a lasting benefit to the health of the labouring classes. The climate of St. Lucia is healthy and compares favourably with other West Indian colonies. Not for many years has there been any outbreak of small-pox or yellow fever, or other quarantinable disease or serious epidemic. The temperature ranges from 70° F. in the cool season to 90° in the summer. The town of Castries, lying on low land, with the majority of the houses roofed with corrugated iron, is sometimes hot during the day, but is cool at night. On the hillsides around, where many of the best residences are built, it is never unbearably warm, while on Morne Fortuné, where the garrison was formerly located, the temperature in the winter months falls as low as 60°, and the climate at all times during the year is extremely mild and pleasant for Europeans. The rainfall in 1921 was 90·06 inches. Much has been written about the presence of the dreaded fer-de-lance snake in St. Lucia. In former years the colony was infested with this dreaded reptile. In 1870, Sir G. Des Vœux, the then administrator, offered a reward of 6*d.* a head, which resulted in the destruction in one year of 52,000, at a cost to the colony of £1300. As the result of the introduction of the mongoose in 1890, and with the advance of cultivation and the continuation of rewards, the remnants of this pest have been driven into the interior.

Ashanti.

There was no serious epidemic in Ashanti during 1921, and the health of the native population seems to have been normal. At Coomassie Hospital, which is the finest native hospital on the Gold Coast, there were 1125 admissions and 83 deaths. The prevalent diseases were ulcers, malaria, and venereal, and there was also a considerable number of pulmonary and bronchial affections. For Europeans the year was a bad one. There were 172 admissions to the hospital as against 149 in 1920, and 186 officials on the sick list, as compared with 116 in the previous year. There were six cases of blackwater fever, with two deaths, as against three cases with one death in 1920. The European population of Coomassie is about 225 out of a total of 20,000. The census of Ashanti, taken in April, recorded a population of 407,000, an increase of 119,230, as compared with ten years ago. It is not possible to speak of the accuracy of the census with any great confidence, and the increase in the population is not necessarily a natural one. It may be due to a more extensive acquaintance with the country and to less suspicion on the part of the inhabitants.

A BOOK FOR PROSPECTIVE MOTHERS.

THE fact that the difficulties and dangers associated with pregnancy and childbirth are largely preventable is slowly becoming better known among the population as a whole. Even yet, however, there are only too many women who neglect to take the necessary care to safeguard themselves from harm during their labours by placing themselves under medical care during the period of their pregnancy. Until this becomes universal childbirth will still take its toll of life and accidents will still happen which a little care and forethought could readily have foreseen and prevented. It is difficult to persuade the young woman that there is a definite danger in childbirth and often even more difficult to make her husband realise that parturition is not always in modern times the simple physiological act it should be. A little book[1] has reached us in which all the necessary facts are set forth in clear and simple language and in which all that is required to be known, not only by the mother but also by the maternity nurse, is included. The failure to spread knowledge among expectant mothers, more especially among the poorer classes and in country districts, showing that there are certain dangers which may be readily recognised and avoided, is accountable for some at least of the heavy death-rate which even at the present day accompanies the act of parturition.

A little volume of this type should be useful to those who are engaged in health visiting as well as to women expecting a child. Miss Van Blarcom is to be congratulated on her book, which should find a large number of appreciative readers.

A DIRECTORY OF TUBERCULOSIS INSTITUTIONS.

A LIST, dated April, 1923, has been issued by the Ministry of Health (to supersede the list of May, 1921) containing all names of sanatoriums and other residential institutions for the treatment of persons suffering from tuberculosis and resident in England and Wales, with the names of administrative counties and county boroughs in which the institutions are situate, and the date on which the approval expires in each case. Distinguishing marks are placed against names of institutions where treatment may include a course of training, where Government training sections have been provided for ex-Service men, and where admission is restricted as regards class of diseases and sex of patients.

WORK OF THE RED CROSS IN CANADA.

THERE are many districts in Canada in which medical and nursing services are totally lacking, and a statement occurring in the "Handbook of Child Welfare Work in Canada," edited by Dr. Helen MacMurchy (Dept. of Health, Ottawa, 1923), to the effect that settlers in outlying districts often suffer untold hardships for lack of skilled attention, is one that can be readily believed. "Imagine," she says, "the hardship of acute pneumonia, or appendicitis, or brain fever, or one of the accidents which are liable to accompany the arrival of the baby, or a fractured skull, arm, or leg, a gunshot wound, or an artery bleeding from an axe wound, and no doctor or nurse within 20 or even 50 miles!" The Red Cross has come effectually to the rescue, and there are now 18 Red Cross hospitals and nursing stations in the three Prairie Provinces. The hospitals have from four to twelve beds each, but the nursing stations have only an emergency ward room which is not used except in extremity, the nurse's work consisting in visiting any injured or sick people in her territory known to her or to whom she may be summoned. In Manitoba the Red Cross also supplies a full-time medical practitioner, who spends all his time in regular visits to the various stations, much of his work being of a preventive character.

Red Cross nurseries have been established at the ports of St. John, Halifax, and Quebec to welcome immigrant women and children on their arrival in the country. Beds, cots, cooking and bathing facilities are provided, and suitable food is offered to both mothers and children. Any infant or child discovered by the nursing staff to be suffering from a condition requiring medical investigation or treatment is reported to the Red Cross headquarters, arrangements being made for all such children to be visited by a public health nurse. During the year more than 9500 children were cared for in the nurseries at these three ports. The Junior Red Cross also exerts a powerful influence in Canada, some 72,700 children having already enrolled as members.

[1] Getting Ready to be a Mother. By Carolyn Conant van Blarcom, R.N., Author of Obstetrical Nursing; The Midwife in England. London: Macmillan and Co. 1923. Pp. 237. 6*s.*